

**BASELINE RISK ASSESSMENT ADDENDUM  
HUMAN HEALTH RISKS ASSOCIATED  
WITH EXPOSURE TO SUBSURFACE SOILS  
MARYLAND SAND, GRAVEL AND STONE SITE  
ELKTON, MARYLAND**

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## **EXECUTIVE SUMMARY**

### **A. Introduction**

The Maryland Sand, Gravel and Stone (MSGSS) site, located in Elkton, Maryland, was previously operated as a sand and gravel quarry. Portions of the site were historically used for the disposal of hazardous materials. These areas are referred to as the Eastern Excavation Area (shown in Figure 1). A Soil Investigation (SI) was conducted by Environmental Resources Management, Inc. (ERM) at the site in 1995 to characterize contamination in buried sludge and in soils. The SI focused on six primary investigation areas identified by ERM as: 1) Pond 1; 2) Pond 2; 3) Pond 3; 4) the Northern Depression Area (NDA); 5) the Buried Waste Area (BWA); and 6) the Area South of Pond 1 (ASP1). Two other areas (the Soil Piles and the Soil Staging Areas) were also investigated.

ENVIRON International Corporation (ENVIRON) was retained by Clean Sites Environmental Services, Inc. (Clean Sites) on behalf of the Settling Potentially Responsible Parties (PRPs) to prepare a baseline risk assessment (BRA) to assess the risks associated with exposure to chemicals in surface soils at the site. The BRA was prepared and submitted to the United States Environmental Protection Agency (USEPA) Region 3. Comments received by USEPA Region 3<sup>1</sup> requested that a quantitative assessment of human health risks associated with exposure to chemicals in subsurface soils at the MSGSS site be conducted as an addendum to the BRA.

The objective of this risk assessment is to identify those areas of the site most likely to contain “principal threat” materials. The National Contingency Plan (NCP) defines principal threat materials to include “liquids, areas contaminated with high concentrations of toxic compounds, and highly mobile materials.” Further, USEPA (1991a) has defined principal threat wastes as “materials considered to be highly toxic or highly mobile that generally cannot be reliably contained or would present a significant risk [i.e., greater than  $10^{-3}$ ] to human health or the environment should exposure occur.” For the purposes of this risk assessment, principal threat wastes are defined as materials that pose a cancer risk of  $10^{-3}$  or higher, or materials with a noncancer hazard index of 100 or higher under hypothetical unrestricted future exposure scenarios.

Based on a preliminary evaluation of chemical concentrations in subsurface soils, the NDA was identified as having substantially higher chemical concentrations in soil than the other areas of the site. The second tier of source areas includes Pond 02, BWA, and Pond 03. Pond 01, the Area South of Pond 01, the Soils Piles, and the Soil Staging Area have significantly lower

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<sup>1</sup> Letter from Lesley Derascavage, USEPA Region 3 to Doug Ammon, Clean Sites Environmental Services, Inc., dated January 7, 1999.

concentrations of chemicals in soils. In conducting this risk assessment, the primary focus is on the NDA; although the other, lower priority, areas are still evaluated. Because this risk assessment is being conducted to identify areas that may contain principal threat materials, each of the areas at the site is evaluated independently.

It should be noted that the BRA previously identified an area of high chemical concentrations in Pond 2, which was referred to as the "Pond 2 hot spot." Risks estimated in the BRA indicated that this Pond 2 hot spot area likely contains principal threat materials; therefore, this area of the site is not evaluated further in this BRA Addendum. The remainder of Pond 2, however, is quantitatively evaluated in this risk assessment and is referred to as Pond 02.

## B. Approach

Environmental sampling and monitoring data have been collected at the MSGS site as part of several investigations, including primarily the SI and a supplemental soil sampling program conducted by ERM in 1999. Data collected during the SI and supplemental soil sampling program serve as the basis for this risk assessment.

Soil sampling data were collected at numerous locations, at several depths up to 37 feet below ground surface. For the purposes of the risk assessment, it was assumed that exposure could occur to chemicals in the upper ten feet of subsurface soils (and surface soils), which are assumed to be brought to the surface by construction-related activities.

The environmental samples collected during the SI and the supplemental soil sampling program were analyzed for numerous chemicals, many of which were not detected or may pose an insignificant risk. In order to focus the risk assessment on those substances that are expected to pose the greatest concern, a subset of chemicals, referred to as Chemicals of Potential Concern (COPCs), was identified for quantitative evaluation. COPCs were selected based on a comparison of maximum detected concentrations in soil (or 95% UCL concentrations for certain source areas) with risk-based concentration (RBC) values for residential soil developed by USEPA Region 3. As a result of this process, 43 COPCs were selected.

Exposure to COPCs in soil by two potentially exposed populations (on-site industrial workers and on-site residents) was evaluated independently for each of the eight areas of the MSGS site. Exposure was assumed to occur through incidental ingestion of soil, dermal contact with soil, and inhalation of vapors emitted from soil. Quantitative estimates of exposure, referred to as chronic daily intake (CDI), were developed using the same general risk assessment methodology that was applied in the BRA and assumptions concerning the nature and magnitude of exposure. Consistent with USEPA guidelines, estimates of "central tendency exposure" (CTE) and "reasonable maximum exposure" (RME) were developed.

The estimated CDI values were combined with estimates of cancer and noncancer toxicity derived by USEPA to develop estimates of lifetime excess cancer risk and the potential

for adverse noncancer health effects (i.e., hazard quotient [HQ] values). Chemical-specific estimates of cancer risk were combined for each exposure pathway, and pathway-specific risks were combined to estimate cumulative cancer risks for each of the two exposure populations. Similarly, cumulative noncancer risk estimates, referred to as Hazard Index (HI) values, were also developed for each exposure population.

### C. Results

This BRA Addendum was conducted to develop estimates of excess lifetime cancer risk and noncancer HI values associated with exposure to COPCs in the surface soil and subsurface soil to 10 feet below ground surface. Estimates of risk were developed independently for each of the eight source areas at the site. The results of the risk assessment area are summarized as follows:

- Cumulative estimated cancer risks for exposure to COPCs in soil in NDA by the on-site industrial worker and the on-site resident exceed  $1 \times 10^{-3}$ . Under the RME scenario, cumulative lifetime cancer risks of  $1 \times 10^{-3}$  and  $1 \times 10^{-2}$  were estimated for the on-site industrial worker and on-site resident, respectively. Estimates of cancer risk for NDA under the CTE scenario were approximately an order of magnitude lower ( $1 \times 10^{-4}$  for the on-site industrial worker and  $1 \times 10^{-3}$  for the on-site resident) than those estimated under RME.
- A cumulative noncancer HI value of 100 is exceeded under the CTE and RME scenarios for on-site residential exposure in NDA. Cumulative noncancer HI values for exposure by an on-site industrial worker and on-site resident in NDA were estimated as 52 and 183, respectively, under the RME scenario. Under the CTE scenario, cumulative HI values of 27 and 114 were calculated for the on-site industrial worker and on-site resident, respectively.
- Estimated cancer risks in areas of the site other than NDA are several orders of magnitude lower than estimated risks for NDA; therefore, none of the other areas evaluated in this risk assessment are likely to contain principal threat materials. For the on-site resident, maximum estimated cancer risks outside of NDA are  $5 \times 10^{-4}$  for exposure in BWA under the RME scenario. Estimated cancer risks to the on-site industrial worker in BWA are  $2 \times 10^{-4}$  under the RME scenario. A cancer risks of  $2 \times 10^{-4}$  was estimated for exposure by an on-site resident in Pond 02 under the RME scenario. Estimated cancer risks for all other areas of the site are estimated to be below  $1 \times 10^{-4}$ .

- Cumulative noncancer HI values are significantly below 100 for areas of the site outside of NDA; thus, none of these areas are likely to include principal threat materials. Under the RME scenario, cumulative HI values below 10 were estimated for exposure by an on-site resident in BWA, Pond 02, and Pond 03. Estimated cumulative HI values were below 1.0 for all other areas of the site.

In summary, principal threat materials may be present in NDA; however, it does not appear that principal threat wastes are present in the other seven areas of the site that were evaluated in this risk assessment. In addition, principal threat materials may be present in the Pond 2 hot spot based on the results of the BRA, which indicated that cancer risks to a child playing in the Pond 2 hot spot may exceed  $1 \times 10^{-3}$ .

## I. INTRODUCTION

### A. Background and Scope

The Maryland Sand, Gravel and Stone (MSGGS) site, located in Elkton, Maryland, was previously operated as a sand and gravel quarry. Portions of the site were historically used for the disposal of hazardous materials. These areas are referred to as the Eastern Excavation Area (shown in Figure 1). A Soil Investigation (SI) was conducted by Environmental Resources Management, Inc. (ERM) at the site in 1995 to characterize contamination in buried sludge and in soils. The SI focused on six primary investigation areas identified by ERM as:

1) Pond 1; 2) Pond 2; 3) Pond 3; 4) the Northern Depression Area (NDA); 5) the Buried Waste Area (BWA); and 6) the Area South of Pond 1. Two other areas (the Soil Piles and the Soil Staging Areas) were also investigated. The location of each of these source areas is presented in Figure 2.

ENVIRON International Corporation (ENVIRON) was retained by Clean Sites Environmental Services, Inc. (Clean Sites) on behalf of the Settling Potentially Responsible Parties (PRPs) to prepare a baseline risk assessment (BRA) to assess the risks associated with exposure to chemicals in surface soils at the site. The BRA was prepared and submitted to the United States Environmental Protection Agency (USEPA) Region 3. Comments received by USEPA Region 3<sup>2</sup> requested that a quantitative assessment of human health risks associated with exposure to chemicals in subsurface soils at the MSGGS site be conducted as an addendum to the BRA.

The objective of this risk assessment is to identify those areas of the site most likely to contain "principal threat" materials. The National Contingency Plan (NCP) defines principal threat materials to include "liquids, areas contaminated with high concentrations of toxic compounds, and highly mobile materials." Further, USEPA (1991a) has defined principal threat wastes as "materials considered to be highly toxic or highly mobile that generally cannot be reliably contained or would present a significant risk [i.e., greater than  $10^{-3}$ ] to human health or the environment should exposure occur." For the purposes of this risk assessment, principal threat wastes will be defined as materials that pose a cancer risk of  $10^{-3}$  or higher, or materials with a noncancer hazard index of 100 or higher under hypothetical unrestricted future exposure scenarios.

Based on a preliminary evaluation of chemical concentrations in subsurface soils, the NDA was identified as having substantially higher chemical concentrations in soil than the other areas of the site. The second tier of source areas includes Pond 02, BWA, and Pond 03. Pond

<sup>2</sup> Letter from Lesley Derascavage, USEPA Region 3 to Doug Ammon, Clean Sites Environmental Services, Inc., dated January 7, 1999.

01, the Area South of Pond 01, the Soils Piles, and the Soil Staging Area have significantly lower concentrations of chemicals in soils. In conducting the subsurface risk assessment, the primary focus is on the NDA; although the other, lower priority, areas are still evaluated. Because this risk assessment is being conducted to identify areas that may contain principal threat materials, each of the areas at the site is evaluated independently.

It should also be noted that the BRA previously identified an area of high chemical concentrations in Pond 2, which was referred to as the "Pond 2 hot spot." Risks estimated in the BRA indicated that this Pond 2 hot spot area likely contains principal threat materials; therefore, this area of the site is not evaluated further in this BRA Addendum. The remainder of Pond 2, however, is quantitatively evaluated in this risk assessment and referred to as Pond 02.

## B. The Risk Assessment Process

The assessment of potential human health risks described in this document is based on guidelines provided by USEPA, in particular: *Risk Assessment Guidance for Superfund* (RAGS) (USEPA 1989) and *Guidance for Risk Characterization* (USEPA 1995). The foundation for this guidance comes from well-established chemical risk assessment principles and procedures developed for the regulation of environmental contaminants (NRC 1983) and other USEPA guidelines (e.g., USEPA 1986; USEPA 1992a). The methodology used in this risk assessment is generally the same as that applied in the BRA for surface soils at the MSGS site (ENVIRON 1998).

It should be noted that the risks estimated using these risk assessment methods are not actuarial (i.e., the risk estimates cannot be used to predict the actual number of individuals who might experience health consequences as a result of exposure). Given the conservative nature of the numerous assumptions employed, actual health risk is almost certainly less than that described using the methods of risk assessment. Although current risk assessment approaches generally overstate risk, USEPA and other regulatory agencies generally recognize that these methods provide a systematic approach that allows public health policy makers to establish the relative risk posed by various environmental substances and potential exposure pathways.

## **II. CHEMICALS OF POTENTIAL CONCERN**

### **A. Introduction**

Environmental sampling and monitoring data have been collected at the MSGS site as part of several investigations, including primarily a soil investigation (SI) conducted by Environmental Resources Management, Inc. (ERM 1997). In addition, ERM conducted supplemental soil sampling within the NDA and Pond 02 hot spot (ERM 1999). Data collected during the SI and the 1999 supplemental soil sampling serve as the basis for this BRA Addendum.

The environmental samples collected during the SI and supplemental soil sampling were analyzed for numerous chemicals, many of which were not detected or may pose an insignificant risk. In order to focus this risk assessment on those substances that are expected to pose the greatest concern, a subset of chemicals, referred to as Chemicals of Potential Concern (COPCs), was identified for quantitative evaluation in this risk assessment. This chapter summarizes the steps followed to organize the data in a form appropriate for the risk assessment and describes the process used to select the COPCs.

### **B. Chemicals of Potential Concern**

Soil sampling data collected during the SI and the supplemental soil sampling were used as the basis for estimating exposure to chemicals in on-site soils (surface and subsurface). Data were collected at numerous locations at several depths up to 37 feet below ground surface. Data used in this risk assessment were limited to samples within the identified source areas, as shown in Figure 2. In addition, it was assumed that exposure could occur to chemicals in the upper ten feet of subsurface soils (and surface soils), which are assumed to be brought to the surface by construction-related activities. Therefore, only samples collected from the upper ten to twelve feet of soil were used in this baseline risk assessment addendum.

#### **1. Data Validation**

The majority of the chemical data collected in the SI and the supplemental soil sampling were generated by analyses conducted on-site by ERM. Some soil samples (roughly 15 percent of the total) were also analyzed by an off-site laboratory (CompuChem for the SI and GPL Laboratories for the supplemental sampling). The resulting data were reviewed and validated by ERM. Data validation procedures resulted in the classification of each sample concentration as either non-qualified (i.e., identity and concentration of the constituent are validated) or qualified (i.e., the concentration or identity of the constituent may not be reliable under certain circumstances discussed in

the bullets below). The validated data were provided to ENVIRON and used in this assessment.

In the selection of COPCs for on-site soils, ENVIRON used the non-qualified chemical data without any modifications or reservations. Qualified data were handled in the following manner:

- Data marked with a J-qualifier, indicating that the concentrations were estimated, were treated as unqualified data.
- Data marked with a B-qualifier, indicating that the result is qualitatively invalid because the analyte was also detected in a blank at a similar concentration, were treated as non-detects.
- Data marked with a B+-qualifier, indicating that the result is qualitatively invalid due to its suspected presence as a sample preparation procedure artifact, were treated as non-detects.
- Data marked with a D-qualifier, indicating that the concentration of the original sample was determined in a diluted sample, were treated as unqualified data.
- Data marked with a K or H-qualifier, indicating that the reported concentration is a biased high quantitative estimate, were treated as unqualified data.
- Data marked with an L-qualifier, indicating that the reported concentration is a biased low quantitative estimate, were treated as unqualified data.
- Data marked with a UJ-qualifier, indicating that analyte was not detected and the detection limit reported is a quantitative estimate, were treated as unqualified non-detects.
- Data marked with a UL-qualifier, indicating that analyte was not detected and the detection limit is higher than that reported, were treated as unqualified non-detects.

## **2. Selection of Chemicals of Potential Concern**

Soil samples collected at the site were analyzed for a total of 156 chemicals. ENVIRON selected a subset of these chemicals (i.e., the COPCs) for evaluation in this risk assessment in order to focus the analysis on the most likely risk drivers. The selected COPCs are presented in Table 1. The process used to arrive at the selected COPCs is described below. In addition, a tabulated summary of this selection process is presented in Appendix A.

- Of the 156 chemicals for which laboratory analysis was conducted, 126 chemicals were detected in at least one sample and were retained for further consideration. The other 30 chemicals were eliminated.
- Residential risk-based concentration (RBC) values developed by USEPA Region 3 were reviewed to evaluate whether toxicity data were available for the remaining 126 detected chemicals. RBC values were not available for 13 of the 126 chemicals because neither reference doses nor carcinogenic potency slopes were available from standard USEPA sources. With the exception of lead, detected chemicals with no listed RBC values were not quantitatively evaluated as part of this risk assessment. Although lead does not have a reference dose or carcinogenic potency slope, it was retained for consideration because a screening level for lead in soil has been established by USEPA. For the remaining 12 substances other than lead without RBC values, a qualitative analysis of the available toxicity information is presented in Appendix B.
- Maximum detected concentrations for the remaining 113 chemicals were compared to the Residential Soil RBC values developed by USEPA Region 3 for carcinogens. For chemicals with noncancer health effects, the maximum concentrations were compared to one-tenth the RBC value (i.e., an RBC based on an HQ value of 0.1). Maximum detected concentrations for 71 of the 113 chemicals were below the RBC value (or one-tenth the RBC for noncarcinogens), indicating that these chemicals are unlikely to pose significant risks.

The remaining 43 chemicals (including lead), which include 15 VOCs, 13 SVOCs, 13 metals, 1 pesticide, and 1 PCB mixture (Aroclor-1242), were selected as COPCs and are listed in Table 1.

### **III. TOXICOLOGICAL ASSESSMENT**

The toxicological assessment involves an evaluation of the relationship between the exposure to a chemical and the likelihood/severity of adverse effects. USEPA has conducted such assessments on many frequently occurring environmental chemicals and has developed toxicity values based on these assessments for use in risk assessments. Toxicity values for noncarcinogenic chemicals and the noncarcinogenic effects of carcinogens are represented by reference doses (RfDs). Cancer slope factors (SFs) and unit risks are measures of carcinogenic potency for known, suspected, and possible human carcinogens.

Toxicity values for chemical substances are published by USEPA and are updated regularly in USEPA's Integrated Risk Information System (IRIS; USEPA 1999) and Health Effects Assessment Summary Tables (HEAST; USEPA 1997). A brief description of the general methodology used by USEPA to derive toxicity values was presented in the BRA. The USEPA toxicity values for the COPCs evaluated in this assessment are summarized in Table 2. As indicated in Table 2, USEPA toxicity values (i.e., RfDs and SFs) are not available for copper and lead. Copper, therefore, is not evaluated quantitatively in this assessment, but is discussed qualitatively in Appendix B, which summarizes the available toxicity data for this chemical. USEPA does not currently publish an RfD value or SF value for lead; therefore, the risks associated with lead are evaluated through a comparison with current USEPA guidance regarding levels of lead in soil (OSWER Directive #9355.4-12, which replaces all earlier guidance on soil lead cleanup for the CERCLA program), as discussed in Chapter V.

USEPA has not developed slope factors and RfDs for dermal exposure. In developing estimates of dermal exposure, an absorbed dose is calculated; whereas, oral toxicity values are based on the applied dose. Therefore, USEPA (1989) recommends that oral slope factors and RfDs that have been adjusted for an absorbed dose be used in evaluating dermal risks. For this assessment, factors that represent the absorption of COPCs through the gastrointestinal (GI) tract were applied to the oral toxicity values to develop dermal toxicity values. Table 3 summarizes the GI absorption factors used in estimating dermal toxicity values, which are summarized in Table 2.

## **IV. EXPOSURE ASSESSMENT**

### **A. Introduction**

An evaluation of potential human exposures to the chemicals of potential concern (COPCs) identified in Chapter II is presented in this chapter. This process consists of several steps, which include: 1) identifying the potentially exposed population based on hypothetical future land use; 2) identifying the exposure pathways that may result in significant human exposures; 3) estimating concentrations of chemicals relevant to the exposed populations and exposure pathways; and 4) calculating the exposure to COPCs from each pathway to the populations.

Given the range of different exposure conditions encountered for most environmental chemicals and exposure populations, USEPA (1995) recommends the exposure assessment include estimates of both “high-end” and “central tendency” estimations of the risk distribution. USEPA (1995) defines high-end exposures to mean “exposure above about the 90<sup>th</sup> percentile of the population distribution.” This definition is similar to what was referred to in earlier guidance documents (USEPA 1989) as “reasonable maximum exposure” (RME), which was intended to represent a conservative exposure case that is still within the range of possible exposures. USEPA (1995) states that the central tendency exposure (CTE) should generally reflect central estimates of exposure or dose, and may be based on either the arithmetic mean exposure or the median exposure. USEPA recommends the exposure assessment include estimates for both intake for reasonable maximum exposure (RME) and central tendency exposure (CTE) of all exposed populations.

### **B. Characterization of Potential Exposure Populations and Pathways**

Two potentially exposed populations have been identified based on hypothetical future land use. Under an industrial-use scenario, portions of the site may be used for industrial activities such as manufacturing or warehousing. The primary population potentially exposed to chemicals under this scenario is on-site industrial workers. Under a residential-use scenario, the primary population potentially exposed to chemicals in the Eastern Excavation Area (see Figure 1) of the site is hypothetical residents that have constructed homes and are residing on the site. In summary, the two potentially exposed populations that are considered in the risk assessment are as follows:

- On-site industrial worker, who would be present on-site if the site is used in the future for manufacturing or warehousing activities; and

- On-site resident, who would be present on-site if the site were to be used in the future for residential purposes.

Although unlikely, hypothetical residents and on-site industrial workers could be exposed to chemicals at the site through direct contact with soil (i.e., incidental ingestion and dermal contact) and through inhalation of vapors emitted from the ground surface.

### C. Estimation of Potential Exposure Concentrations

In order to assess the levels of risk associated with the human exposure pathways in the hypothetical scenarios presented above, the concentrations of COPCs that may be present in on-site surface soils and air must be estimated.

#### 1. Soil Concentrations

In developing exposure concentrations for COPCs in soil, the following guidelines were followed:

- For field duplicate samples, the highest detected concentration or one-half the detection limit (for non-detects) was used.
- For the on-site analysis results obtained during the supplemental soil sampling program, detection limits were not available. Therefore, for the supplemental sampling program results only, it was assumed that chemicals that were not detected in a specific field analysis sample were not analyzed for in that sample.
- For samples with reported results from both the on-site (ERM-FAST) and off-site (CompuChem or GPL) laboratories, the following assumptions were made:
  - Because the sample preparation and storage methods used by the off-site laboratories resulted in significant loss of volatiles, only ERM-FAST results were used for volatile organic compounds.
  - For the remaining analytes (i.e., semivolatile organic compounds, pesticides, PCB's, and metals), the average of the two (ERM-FAST and the off-site laboratory) results was used if both of the results were either

detects or non-detects. If one of the reported results was a non-detect and one was a detect, the detected result was used.

In each of the eight areas of the site, estimated exposure point concentrations of COPCs were developed based on the maximum detected concentration or the 95% upper confidence limit (UCL) on the mean concentration. COPCs not detected in a specific area were assumed not to be present. Although multiple soil samples were collected within each area, USEPA (1992b) guidance indicates that data sets with fewer than ten samples provide poor estimates of the 95% UCL concentration. Therefore, in areas of the site with fewer than ten samples, the maximum concentration detected was used in the risk assessment. For areas with more than nine samples (i.e., Pond 02, Pond 03, and NDA<sup>3</sup>), 95% UCL concentrations were calculated. The data were analyzed using the W-test presented in Gilbert (1987) to determine the best-fit statistical distribution (i.e., normal or lognormal distribution). This analysis revealed that the data for Pond 02, Pond 03, and NDA were neither normally nor lognormally distributed at a 95% level of confidence. Given the results of the W-test, the lognormal distribution was selected as a basis for estimating exposure point concentrations (assuming lognormality tended to result in more conservative estimates of exposure concentrations). For Pond 02, Pond 03, and NDA, the exposure point concentration is the 95% UCL on the mean or the maximum detected concentration, whichever is lower. The resulting exposure point concentrations used in the BRA Addendum are presented in Table 4. The data that were used to develop the concentrations in Table 4 and the selected exposure point concentrations are presented in Appendix C.

## 2. Air Concentrations

The estimation of concentrations is a two-step process, involving the development of emission estimates and the modeling of atmospheric dispersion. Air concentrations due to passive emissions from the ground surface were estimated for each source area individually.

Emissions of COPCs from on-site source area were estimated through the application of volatilization models recommended by USEPA (1996a,b). A description of these models and their application in this BRA Addendum are presented in Appendix D.

The second step is the prediction of downwind air concentrations using an atmospheric dispersion model. For the purposes of this risk assessment, the USEPA-

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<sup>3</sup> For NDA, data from more than nine samples were available for only certain chemicals that were analyzed for in the supplemental sampling program.

recommended Industrial Source Complex (ISC) model in the short-term mode (ISCST3) was used. Additional discussion on the use of this model in the risk assessment is provided in Appendix D.

Dispersion modeling of emissions from the on-site source areas provides an estimate of air concentrations associated with emissions from each of the individual source areas at the site. The predicted air concentrations that resulted from this analysis are presented in Appendix D.

#### D. Estimation of Human Intakes

The estimation of human intake of COPCs received through exposure to vapors and on-site soils was developed by calculating the pathway-specific chronic daily intake (CDI) for each of the two populations. The CDI is expressed in terms of the mass of substance in contact with the body per unit body weight per time, and is calculated as a function of chemical concentration in the medium, contact rate, exposure frequency and duration, body weight, and averaging time. The generic equation for calculating the CDI is as follows:

$$CDI = \frac{C \times CR \times EF \times ED}{BW \times AT}$$

where,

CDI	=	chronic daily intake, mg/kg-day,
C	=	chemical concentration in medium, e.g., mg/kg,
CR	=	contact rate, e.g., kg/day,
EF	=	exposure frequency, days/year,
ED	=	exposure duration, years,
BW	=	body weight, kg, and
AT	=	averaging time, days.

In an exposure assessment, a CDI for both carcinogenic and noncarcinogenic effects is estimated. For carcinogenic effects, the CDI is estimated by averaging the total cumulative intake over a lifetime (USEPA 1989). The CDI used in the assessment of noncarcinogenic effects is the average daily dose an individual is likely to receive on any day during the period of exposure. In cases where exposure is intermittent, USEPA guidance states it is appropriate to average intake over the period of exposure in assessing the potential for noncarcinogenic effects. This distinction in the calculation of the CDI for carcinogens and noncarcinogens relate to the currently held scientific opinion that the mechanisms of action of the two categories of chemicals are different. For carcinogens, the assumption is made that a high dose received over a short period of time produces a carcinogenic effect comparable to a corresponding low dose spread

over a lifetime (USEPA 1989). For noncarcinogens, it is assumed that adverse effects are likely to occur only during periods of exposure when some "threshold" level is exceeded, but that latent effects will not result for any exposures at levels below the threshold.

In this assessment, estimates of human intake have been developed for exposure by on-site industrial workers and on-site residents. Specific exposure assumptions are discussed in the following sections. Estimated chemical-specific CDI values are presented in Appendix E.

### 1. On-Site Industrial Worker

Potential exposures by on-site workers to COPCs have been evaluated for incidental ingestion of soil, dermal contact with soil, and inhalation of vapors. The equations and exposure assumptions used to estimate CTE and RME intakes for on-site industrial workers via these pathways are provided in Tables 5, 6, and 7. For each of these exposure pathways, the industrial worker is assumed to be exposed for 150 days/year for 5 years, under the CTE scenario, and 250 days/year for 25 years under the RME scenario. In addition, the industrial worker is assumed to have a body weight of 70 kg.

For the soil ingestion exposure pathway (Table 5), the industrial worker is assumed to ingest 25 mg/day of soil under the CTE scenario and 50 mg/day for the RME scenario. Under both scenarios, it is assumed that all soil ingested is derived from the site (i.e., fraction ingested from contaminated source equals 1.0).

For dermal contact (Table 6), USEPA (1997b) indicates that clothing does not necessarily protect an individual from exposure through dermal contact, although the amount of soil adhering to the skin is likely to be significantly less for covered areas than exposed areas. USEPA (1997b) recommends, therefore, that the surface area of dermal contact be estimated as 25 percent of the total body surface ( $5000\text{ cm}^2$  for CTE and  $5,800\text{ cm}^2$  for RME). USEPA (1997b) also provides detailed estimates of soil-to-skin adherence, depending on both activity type and body part. Based on the available data, ENVIRON used the soil-to-skin adherence data for a "groundskeeper" provided by USEPA (1997b) to develop a soil-to-skin adherence factor (AF) for an on-site industrial worker. Groundskeeper activities are expected to involve a greater amount of contact with soil than typical industrial worker activities; therefore, the soil-to-skin adherence factor used in the assessment is assumed to be conservative. The AF value in Table 6 of  $0.02\text{ mg/cm}^2$  for the CTE scenario is based on an average of the adherence data presented by USEPA (1997b) for groundkeepers (average of five sets of data). For the RME scenario, the average of body-part-specific adherence data for the worst-case groundskeeper data was used in developing an AF value of  $0.04\text{ mg/cm}^2$ .

In estimating intakes via inhalation of vapors (Table 7), exposures are assumed to occur for 8 hours per day for every workday. Under the CTE scenario, the standard default inhalation rate of 20 m<sup>3</sup>/day (USEPA 1991b) is used, applying 10 m<sup>3</sup>/day to the 8-hour workday, and 10m<sup>3</sup> to the remaining 16 hours of the day spent off-site. Under the RME scenario, the standard inhalation rate of 20 m<sup>3</sup>/day (USEPA 1991b) is applied entirely to the 8-hour workday.

## 2. On-Site Resident

Estimates of exposure were developed for the on-site resident using the intake equations provided in Tables 8, 9, and 10. Exposure by the on-site resident is divided between childhood and adult exposure. For each of the three pathways considered, the exposure duration under the CTE scenario is 9 years, which is divided between 2 years as a child and 7 years as an adult (USEPA 1993a). For the RME scenario, the exposure duration is divided between 6 years as a child and 24 years as an adult. The exposure frequencies for both children and adults under the CTE and RME scenarios are 234 days/year and 350 days/year, respectively. The assumed body weights for children and adults are 15 kg and 70 kg, respectively.

For the soil ingestion pathway (Table 8), the soil ingestion rate used in the intake equation is in terms of an age-adjusted intake factor, which combines age-specific soil ingestion rates, exposure duration, and body weight in a single term. Under the CTE scenario, the age-specific ingestion rates for children and adults are 100 mg/day and 50 mg/day, respectively. For the RME scenario, the age-specific ingestion rates for children and adults are 200 mg/day and 100 mg/day, respectively. The age-specific exposure duration and body weights are identified above.

For dermal exposure (Table 9), an age-adjusted skin surface area factor (AF<sub>adj</sub>) is based on age-specific SA values, exposure duration, and body weight. The age-specific SA values for children and adults are 1,750 cm<sup>2</sup> and 5,000 cm<sup>2</sup>, respectively, under the CTE scenario, and 2,000 cm<sup>2</sup> and 5,800 cm<sup>2</sup>, respectively, under the RME scenario. Age-specific SA values were estimated using the methodology recommended by USEPA (1992d; 1997b); the recommended values are based on 25 percent of the body surface area for a 1- to 6-year-old child and for an adult. Values of the AF<sub>adj</sub> of 0.02 mg/cm<sup>2</sup> and 0.04 mg/cm<sup>2</sup> were applied for the CTE and RME scenarios, respectively. Since USEPA (1997b) does not present soil-to-skin adherence data for typical residential activities, the values for the industrial worker were applied and are believed to be conservative for on-site residents.

In estimating intakes via inhalation of vapors (Table 10), exposures are assumed to occur for 24 hours per day for each day. The age-adjusted inhalation factors for the

CTE are based on IR values, exposure duration, and body weight. Under both the CTE and RME scenarios, the age-specific inhalation rates are 12 m<sup>3</sup>/day and 20 m<sup>3</sup>/day for the child and adult, respectively. The age-specific exposure duration and body weights are identified above.

## V. RISK CHARACTERIZATION

### A. Introduction

Risk characterization is the final step of the human health risk assessment process. In this step, the toxicity values for the COPCs are used in conjunction with the estimated chemical intakes for the modeled populations to estimate carcinogenic risks and the potential for adverse noncarcinogenic health effects from exposure to the COPCs.

### B. Methodology for Quantitative Risk Estimation

#### 1. Estimation of Potential Carcinogenic Risks

The potential cancer risk resulting from exposure to a COPC is expressed as the product of the chronic daily intake (CDI) and risk per unit dose or carcinogenic slope factor (SF), as follows:

$$\text{Risk} = \text{CDI} \times \text{SF}$$

where,

Risk	=	lifetime probability of a carcinogenic response, unitless,
CDI	=	chronic daily intake, mg/kg-day, and
SF	=	carcinogenic slope factor, (mg/kg-day) <sup>-1</sup> .

As stated previously, regulatory agencies generally make the conservative assumption that any internal dose of any chemical classified as carcinogenic, no matter how small, presents some carcinogenic risk to humans. For the purposes of this assessment, principal threat materials are defined as areas of the site with estimated cancer risks above  $10^{-3}$ .

#### 2. Estimation of Potential Risks for Noncarcinogenic Effects

Unlike the measure of risk used for carcinogens, the measure used to describe the potential for noncarcinogenic toxicity to occur is not expressed as a probability of experiencing an adverse effect. Instead, the numerical estimate of the potential for adverse effects resulting from exposure to COPCs is evaluated as the ratio of the calculated CDI to the RfD. This ratio is referred to as the Hazard Quotient (HQ), and is calculated as follows:

$$\text{Hazard Quotient (HQ)} = \frac{\text{CDI}}{\text{RfD}}$$

where,

- CDI = chronic daily intake, mg/kg-day and  
RfD = reference dose, mg/kg-day.

An HQ value is calculated for each COPC individually. A summary measure of the potential for adverse noncancer effects is obtained by summing these chemical HQ values to generate a Hazard Index (HI) value. The HI approach assumes that multiple sub-threshold exposures could result in an adverse effect. Furthermore, it assumes that all chemicals affect the same target organ, which is conservative. For the purposes of this risk assessment, areas of the site with estimated HI values in excess of 100 are assumed to contain possible principal threat materials.

### **3. Estimation of Potential Risks Associated with Lead**

Because USEPA does not currently publish a reference dose or cancer slope factor for lead, the risks associated with this COPC cannot be included in the total carcinogenic and noncarcinogenic risk estimates. The current USEPA guidance regarding levels of lead in soil (OSWER Directive #9355.4-12, which replaces all earlier guidance on soil lead cleanup for the CERCLA program) provides a residential screening level of 400 mg/kg.

The primary pathway by which members of the populations of concern might be exposed to lead is by direct contact with soils. Lead was detected in 94 of the 199 soil samples collected at the site; the reported lead concentrations ranged from 0.45 to 34,000 mg/kg. Only six of these samples had lead concentrations exceeding 400 mg/kg, indicating potential concern for exposure to lead. Two of these six samples, measuring 1,300 mg/kg and 34,000 mg/kg, came from the Pond 2 hot spot, which was previously identified in the BRA as an area which likely contains principal threat materials. The other four samples were collected at depths between 4 and 12 feet below ground surface (two samples in NDA and one each in Pond 2 and Pond 3). If exposure to subsurface soils in these limited areas were to occur, there may be potential concerns due to exposures to lead.

### C. Estimates of Risk

Excess lifetime cancer risks and the potential for adverse noncancer health effects (HI values) were estimated for eight areas of the MSGS site under both the CTE and RME exposure scenarios. Cancer risks and HI values were developed for hypothetical on-site industrial workers and future on-site residents, who could be exposed at the site through ingestion of soil, dermal contact with soil, and inhalation of vapors emitted from the ground surface.

As discussed in Chapter I (Introduction), preliminary review of soil sampling results from the site indicates that the highest levels of COPCs in soil were detected in the NDA. It was anticipated, therefore, that human health risks associated with exposure in this area would be higher than in other areas of the site. Table 11 summarizes the estimated cancer risks and HI values for NDA for the on-site industrial worker and on-site resident. As indicated in Table 11, estimated cancer risks for both the on-site industrial worker and on-site resident exceed  $1 \times 10^{-3}$ , indicating that principal threat materials may be present in the NDA. As shown in Table 11, ingestion of soil is the primary contributor to total cancer risks under the RME scenario; however, inhalation of vapors also contributes significantly. Under all scenarios, dermal contact with soil poses the least risk of the three exposure pathways evaluated.

Chemical-specific estimates of cancer risk for the NDA are presented in Appendix F. For the on-site resident under the RME scenario, tetrachloroethene is the primary contributor to total estimated cancer risks. Other chemicals that contribute significantly to total risks in NDA include benzene, trichloroethene, bis(2-chloroethyl)ether, and 1,1-dichloroethene.

Noncancer HI values in excess of 100 were estimated for the on-site resident in NDA under the RME scenario, as indicated in Table 11. The total HI value was due primarily to exposure through ingestion of soil and inhalation of vapors. For the CTE scenario, inhalation of vapor is primary contributor to the total estimated HI. For the RME scenario, ingestion of soil is the primary contributor to total estimated HI. For the on-site worker, estimated HI values were below 100, as indicated in Table 11.

Chemical-specific HQ values for the NDA are summarized in Appendix F. For the on-site resident under the RME scenario, the primary contributors to the cumulative HI are chlorobenzene, tetrachloroethene, and 1,1,1-trichloroethane.

Cumulative cancer risks were estimated to be significantly lower in areas of the site outside of NDA, as indicated in Table 12. Similarly, estimated HI values (Table 13) for these areas are also significantly lower than values estimated for the NDA, indicating that principal threat materials are unlikely to be present in these areas of the site. For the areas outside of NDA, the highest cancer risks were estimated for an on-site resident at BWA ( $3 \times 10^{-4}$  for RME scenario). Estimated cancer risks for the on-site industrial worker in BWA are  $9 \times 10^{-5}$  under the RME scenario. Cancer risks of  $2 \times 10^{-4}$  were estimated for exposure by an on-site resident in Pond 02 under the RME scenario. Estimated cancer risks for all other areas of the site are

estimated to be below  $1 \times 10^{-4}$ . For adverse noncancer health effects, cumulative HI values below 10 were estimated for exposure by an on-site resident in BWA, Pond 02, and Pond 03 under the RME scenario. Estimated cumulative HI values were estimated to be below 1.0 for all other areas of the site.

Tables 14 through 19 present the pathway-specific estimates of cancer risk and noncancer HI values. Estimated chemical-specific cancer risks and HI values are presented in Appendix F.

#### D. Discussion of Uncertainties

As discussed in the BRA, the risk assessment process provides a systematic means of organizing, analyzing, and presenting information on the nature and magnitude of risks posed by exposure to chemicals in the environment. Some level of uncertainty is associated with all risk assessments, however, due to a variety of reasons, including the quality of available data, the underlying assumptions, and the amount of site-specific information available to characterize current and future conditions. A discussion of the primary sources of uncertainty associated with the risk assessment process, in general, and the application of risk assessment to the MSGS site is presented Chapter V, Section E of the BRA. Additional sources of uncertainty that are associated with the current risk assessment, include the following:

- For areas with fewer than ten soil samples, estimates of exposure to chemicals in soil are based on maximum detected concentrations of COPCs that are assumed to be present throughout a given source area. This assumption was applied due to the lack of data to develop reliable, area-specific estimates of 95% UCL concentrations of COPCs in these area. A preliminary review of the soil sampling data indicates, however, that concentrations of COPCs may vary by several orders of magnitude between samples within a given area. As such, chemicals in soil are likely associated with “hot-spots” that represent a significantly smaller volume of soil than assumed in this risk assessment.
- The chemical concentrations detected at the hot spot location in NDA are extremely high. Given the levels of chemicals detected (percent levels in some cases), it is likely that the reported concentrations are approximate and biased high. On the other hand, other chemicals may be present that are obscured by the detected chemicals. As a result, there is likely to be significant uncertainty associated with the risk estimates for NDA.
- It is assumed for the purposes of this risk assessment that subsurface soils down to a depth of ten feet below ground surface will be brought to the surface due to

construction activities at the site. Such activities at the site are highly unlikely to occur; therefore, it is unlikely that exposure to chemicals in subsurface soils would occur to the extent assumed in this risk assessment.

- Each of the areas evaluated in this BRA Addendum is assessed independently, assuming no contribution from other areas of the site. This assumption was applied to evaluate the relative risks of the areas at the site. Although it is possible that chemicals in all parts of the site could contribute to exposure within a given source area, it is unlikely that such contributions would be significant.
- In evaluating the potential for adverse noncancer effects, it is assumed in this assessment that exposure to multiple chemicals is additive. Noncarcinogens typically affect one or more target organs. Assuming that all noncarcinogenic chemicals affect the same target organ is conservative and likely results in an overestimation of potential noncancer risks.
- The model used to estimate emissions of vapors from on-site soil relies on a number of conservative assumptions. Specifically, it is assumed that chemicals are distributed evenly throughout the soil column, which does not appear to be true based on a review of the soil sampling data at the site. Furthermore, the model accounts for soil vapor saturation of individual chemicals but does not account for multi-chemical systems. Both assumptions will tend to result in an overestimation of emission.

## E. Conclusions

Based on the cancer risks and noncancer HI values estimated in this risk assessment, principal threat materials may be present in NDA. It does not appear that principal threat wastes are present in any of the other areas of the site. In addition, principal threat materials may be present in the Pond 2 hot spot based on the results of the BRA.

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## **T A B L E S**

**TABLE 1**  
**Chemicals of Potential Concern (COPCs)**

<u>VOCs</u>	<u>SVOCs</u>	<u>Metals</u>
Acetone	Benzo(a)pyrene	Antimony
Benzene	Benzo(b)fluoranthene	Arsenic
Chlorobenzene	Bis(2-chloroethyl)ether	Barium
Dibromochloromethane	Bis(2-ethylhexyl)phthalate	Cadmium
1,1-Dichloroethene	Dibenz(a,h)anthracene	Copper**
Ethylbenzene	1,3-Dichlorobenzene	Iron
Methylene chloride	1,4-Dichlorobenzene	Lead
4-Methyl-2-pentanone*	3,3-Dichlorobenzidine	Manganese
m,p-Xylene	Hexachlorobenzene	Mercury
o-Xylene	4-Methylphenol	Nickel
Tetrachloroethene	Naphthalene	Selenium
Toluene	Nitrobenzene	Thallium
1,1,1-Trichloroethane	1,2,4-Trichlorobenzene	Vanadium
Trichloroethene		
Vinyl chloride		
<b>Pesticides/PCBs</b>		
Aldrin		
Aroclor-1242		

\* Also known as methyl isobutyl ketone (MIBK)

\*\* Copper is not evaluated quantitatively in the risk assessment because USEPA-derived toxicity values are not available.

**TABLE 2**  
Toxicity Values for Chemicals of Potential Concern

Chemical	Oral RfD (mg/kg/d)	Oral Slope Factor (mg/kg/d) <sup>-1</sup>	Dermal RfD <sup>f</sup> (mg/kg/d)	Dermal Slope Factor <sup>f</sup> (mg/kg/d) <sup>-1</sup>	Inhalation RfD (mg/kg/d)	Inhalation Slope Factor (mg/kg/d) <sup>-1</sup>
<b>Volatile Organic Compounds</b>						
1,1,1-Trichloroethane	0.02 <sup>a</sup>	--	0.018	--	0.286 <sup>a</sup>	--
1,1-Dichloroethene	0.009	0.6	0.0090	0.60	--	0.175
4-Methyl-2-pentanone	0.08 <sup>b</sup>	--	0.064	--	0.02 <sup>b</sup>	--
Acetone	0.1	--	0.083	--	--	--
Benzene	0.003 <sup>a</sup>	0.029	0.00291	0.030	0.0017 <sup>a</sup>	0.029
Chlorobenzene	0.02	--	0.0062	--	0.005 <sup>b</sup>	--
Dibromochloromethane	0.02	0.084	0.012	0.14	--	--
Ethylbenzene	0.1	--	0.082	--	0.29	--
m,p-Xylene	2 <sup>b</sup>	--	2	--	--	--
Methylene chloride	0.06	0.0075	0.057	0.00789	0.86 <sup>b</sup>	0.00165
o-Xylene	2 <sup>b</sup>	--	2	--	--	--
Tetrachloroethene	0.01	0.052 <sup>a</sup>	0.01	0.052	0.14 <sup>a</sup>	0.002 <sup>a</sup>
Toluene	0.2	--	0.16	--	0.114	--
Trichloroethene	0.006 <sup>a</sup>	0.011 <sup>a</sup>	0.006	0.011	--	0.006 <sup>a</sup>
Vinyl chloride	--	1.9 <sup>b</sup>	--	1.9	--	0.3 <sup>b</sup>
<b>Semivolatile Organic Compounds</b>						
1,2,4-Trichlorobenzene	0.01	--	0.0042	--	0.057 <sup>b</sup>	--
1,3-Dichlorobenzene	0.03 <sup>a</sup>	--	0.027	--	0.002 <sup>a</sup>	--
1,4-Dichlorobenzene	0.03 <sup>a</sup>	0.024 <sup>b</sup>	0.027	0.0267	0.229	0.022 <sup>a</sup>
3,3'-Dichlorobenzidine	--	0.45	--	0.45	--	--
4-Methylphenol	0.005 <sup>b</sup>	--	0.0045	--	--	--
Benzo(a)pyrene	--	7.3	--	12.59	--	3.1 <sup>a</sup>
Benzo(b)fluoranthene	--	0.73	--	1.26	--	--
Bis(2-chloroethyl)ether	--	1.1	--	1.1	--	1.1
Bis(2-ethylhexyl)phthalate	0.02	0.014	0.011	0.0255	--	0.014 <sup>a</sup>
Dibenz(a,h)anthracene	--	7.3 <sup>i</sup>	--	12.59	--	--
Hexachlorobenzene	0.0008	1.6	0.00064	2	--	1.6
Naphthalene	0.02	--	0.016	--	0.0009	--
Nitrobenzene	0.0005	--	0.000485	--	0.0006 <sup>b</sup>	--
<b>Pesticides/ PCBs</b>						
Aldrin	--	17	0.000015	34	--	17
Aroclor-1242 <sup>c</sup>	--	2	--	2.22	--	0.4

**TABLE 2**  
Toxicity Values for Chemicals of Potential Concern

Metals	Chemical	Oral RfD (mg/kg/d)	Oral Slope Factor (mg/kg/d) <sup>a</sup>	Dermal RfD <sup>f</sup> (mg/kg/d)	Dermal Slope Factor <sup>f</sup> (mg/kg/d) <sup>i</sup>	Inhalation RfD (mg/kg/d)	Inhalation Slope Factor (mg/kg/d) <sup>j</sup>
Antimony		0.0004	--	0.000004	--	--	--
Arsenic		0.0003	1.5	0.000285	1.58	--	15.1
Barium		0.07	--	0.0049	--	0.00014 <sup>h</sup>	--
Cadmium <sup>d</sup>		0.001	--	0.00005	--	--	6.3
Copper		--	--	--	--	--	--
Iron		0.3 <sup>e</sup>	--	0.045	--	--	--
Lead <sup>e</sup>		--	--	--	--	--	--
Manganese		0.02	--	0.001	--	0.0000143	--
Mercury		0.0003 <sup>j</sup>	--	0.00006	--	0.0000086	--
Nickel		0.02	--	0.0054	--	--	--
Selenium		0.005	--	0.003	--	--	--
Thallium		0.00007 <sup>k</sup>	--	0.0000105	--	--	--
Vanadium		0.007 <sup>b</sup>	--	0.000021	--	--	--

## Notes:

All values derived from IRIS (USEPA 1998) unless otherwise noted.

a - Toxicity value from USEPA Region 3 RBC Table (EPA-NCEA Regional support provisional value).

b - USEPA 1997a (Health Effects Assessment Summary Tables [HEAST])

c - Value based on oral RfD for Aroclor 1254.

d - Based on cadmium in food; RfD based on cadmium in water is 0.0005 mg/kg-day.

e - Neither an RfD nor a SF value is available for lead. In this assessment, estimated concentrations of lead are compared to a USEPA-derived screening-level concentration of lead in soil.

f - Dermal toxicity values were developed from oral toxicity values by applying a GI absorption factor (Appendix F).

g - Value for thallium not available; therefore, value for thallic oxide was applied.

h - HEAST; Alternate method.

i - Based on the value benzo(a)pyrene using a relative potency approach outline by USEPA 1993b.

j - Based on the toxicity value for mercuric chloride.

**TABLE 3**  
**Gastrointestinal (GI) Absorption Factors**

Chemical	GI Absorption Factor	Reference
<b>Volatile Organic Compounds</b>		
1,1,1-Trichloroethane	0.9	ATSDR 1993
1,1-Dichloroethene	0.998	ATSDR
4-Methyl-2-Pentanone	0.8	ATSDR 1992
Acetone	0.83	ATSDR 1994
Benzene	0.97	ATSDR 1997
Chlorobenzene	0.31	ATSDR 1990
Dibromochloromethane	0.6	ASTDR 1990
Ethylbenzene	0.82	Owen 1990
m,p-Xylene	1	Owen 1990
Methylene Chloride	0.95	Angelo 1986
o-Xylene	1	Owen 1990
Tetrachloroethene	1	ATSDR 1997
Toluene	0.8	ATSDR 1993
Trichloroethene	1	ATSDR 1997
Vinyl Chloride	1	ATSDR 1997
<b>Semivolatile Organic Compounds</b>		
1,2,4-Trichlorobenzene	0.42	ATSDR
1,3-Dichlorobenzene	0.9	USEPA 1987a <sup>a</sup>
1,4-Dichlorobenzene	0.9	USEPA 1987a
3,3'-Dichlorobenzidine	1	ATSDR <sup>b</sup>
4-Methylphenol	0.9	HSDB <sup>c</sup>
Benzo(a)Pyrene	0.58	ATSDR 1995
Benzo(b)Fluoranthene	0.58	ATSDR 1995
Bis(2-Chloroethyl)Ether	1	Owen 1990 <sup>d</sup>
Bis(2-Ethylhexyl)Phthalate	0.55	ATSDR 1993
Dibenz(a,h)Anthracene	0.58	ATSDR 1995
Hexachlorobenzene	0.8	ATSDR 1996
Naphthalene	0.8	ATSDR 1993
Nitrobenzene	0.97	Sabourin 1987
<b>Pesticides/ PCBs</b>		
Aldrin	0.5	ATSDR 1993
Aroclor-1242	0.9	ATSDR 1989 <sup>e</sup>
<b>Metals</b>		
Antimony	0.01	ATSDR 1990
Arsenic	0.95	ATSDR 1993
Barium	0.07	ATSDR 1992
Cadmium	0.05	WHO 1992
Copper	0.5	V & L 1978
Iron	0.15	Goyer 1991
Lead	0.15	Goyer 1991
Manganese	0.05	ATSDR 1990
Mercury	0.2	USEPA 1997
Nickel	0.27	ATSDR 1995

**TABLE 3**  
**Gastrointestinal (GI) Absorption Factors**

Chemical	GI Absorption Factor	Reference
Selenium	0.6	Owen 1990
Thallium	0.15	ATSDR 1992
Vanadium	0.03	USEPA 1987b
<u>References:</u>		
Angelo 1986	Angelo, M.J., A.B. Pritchard, D.R. Hawkins, et al. 1986. The pharmokinetics of dichloromethane. I. Disposition in B6C3F1 mice following intravenous and oral administration. <i>Food Chem. Toxicol.</i> 24: 965-974.	
ATSDR	Values cited in Agency for Toxic Substances and Disease Registry (ATSRD) Toxicological Profile	
Goyer 1991	Toxic Effects of Metals. In: <i>Cassarett and Doull's Toxicology: The Basic Science of Poisons</i> . M.O. Ammdur, J. Doull, and C.D. Klasssen, eds. pp.623-680.	
HSDB	Hazardous Substance Data Bank (on-line chemical data base)	
Owen 1990	Literature-Derived Absorption Coefficients for 39 Chemicals via Oral and Inhalation Routes of Exposure, <i>Regulatory Toxicology and Pharmacology</i> 11, 237-252.	
Sabourin 1987	Sabourin, P.J., B.T. Chen, G. Lucier, et al. 1987. Effects of dose on the absorption and excretion of [14C]benzene administered orally or by inhalation in rats and mice. <i>Toxicol. Appl. Pharmacol.</i> 87:325-336.	
USEPA 1987a	<i>Health effects assessment of dichlorobenzenes</i> . United States Environmental Protection Agency. Environmental Criteria and Assessment Office, Cincinnati, Ohio. ECAO-CIN-H079.	
USEPA 1987b	<i>Health assessment of vanadium and compounds</i> . United States Environmental Protection Agency. Environmental Criteria and Assessment Office, Cincinnati, Ohio. ECAO-CIN-H108.	
USEPA 1997	<i>Mercury Study Report to Congress. Volume V: Health effects of mercury and mercury compounds</i> . United States Environmental Protection Agency.	
V & L 1978	Vebugopal, B. and T.D. Luckey. 1978. <i>Metal Toxicity in Mammals - 2. Chemical Toxicity of Metals and Metalloids</i> . Plenum Press. pp. 104-112.	
WHO 1992	<i>Environmental health criteria 134</i> . World Health Organization, Geneva.	
<u>Notes:</u>		
a	- Based on 1,4-dichlorobenzene	
b	- Toxicological profile notes rapid absorption; therefore GI absorption assumed to be 1.0	
c	- Based on the value for phenol	
d	- Based on the value for bis(chloromethyl)ether	
e	- Based on the value for Aroclor 1016, 1254, and 1260.	

TABLE 4  
Summary of Exposure Point Concentrations in Soil  
Exposure Point Concentrations in Soil<sup>a</sup>

COPC	Volatile Organic Compounds ( $\mu\text{g}/\text{kg}$ )	Exposure Point Concentrations in Soil						SSA
		ASP1	BWA	ND	POND01	POND02	POND03	
	1,1,1-Trichloroethane	ND	1100000	65000000	2000	140000	1800	470
	1,1-Dichloroethene	ND	64000	79637	180	12000	19	14
	4-Methyl-2-pentanone	ND	95000	ND	7400	38000	13000	4500
	Acetone	NA	ND	4400000	NA	270000	NA	NA
	Benzene	ND	34000	2300000	190	35000	65	45
	Chlorobenzene	ND	670000	27000000	4800	390000	580000	14000
	Dibromochloromethane	ND	ND	ND	ND	ND	ND	ND
	Ethylbenzene	ND	53000	9300000	140	100000	180000	820
	M,P-Xylene	ND	220000	39000000	2	580000	620000	1500
	Methylene chloride	ND	ND	NA	280	550000	ND	55
	O-Xylene	ND	95000	16000000	300	300000	620000	1300
	Tetrachloroethene	ND	350000	110000000	ND	630000	650000	1400
	Toluene	ND	830000	230000000	8800	200000	1000	6500
	Trichloroethene	ND	200000	14000000	33	95000	1490	1000
	Vinyl chloride	ND	ND	ND	160	970	33	430
	Semivolatile Organic Compounds ( $\mu\text{g}/\text{kg}$ )							
	1,2,4-Trichlorobenzene	ND	300000	24000	16	600	1410	250
	1,3-Dichlorobenzene	ND	19000	1000000	34	ND	ND	15
	1,4-Dichlorobenzene	ND	65000	600000	ND	65000	11400	120
	3,3'-Dichlorobenzidine	ND	12	2400	ND	ND	ND	ND
	4-Methylphenol	ND	410	ND	47	20000	45	150
	Benzo(a)pyrene	ND	ND	ND	ND	ND	ND	ND
	Benzo(b)fluoranthene	ND	ND	ND	ND	ND	ND	ND
	Bis(2-chloroethyl)ether	ND	ND	ND	ND	ND	ND	ND
	Bis(2-ethylhexyl)phthalate	ND	9400	ND	3700	200000	ND	1000
	DiBenz(a,h)anthracene	ND	ND	ND	ND	ND	ND	ND

COPC	Summary of Exposure Point Concentrations in Soil <sup>a</sup>						SP	SSA
	ASP1	BWA	NDA	POND01	POND02	POND03		
<b>Volatile Organic Compounds (µg/kg)</b>								
Hexachlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	46	7400	15000	ND	12000	1221	ND	ND
Nitrobenzene	ND	ND	4000	ND	ND	ND	ND	ND
<b>Pesticides/ PCBs (µg/kg)</b>								
Aldrin	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1242	ND	82	ND	ND	ND	ND	ND	ND
<b>Metals (mg/kg)</b>								
Antimony	ND	ND	9.7	ND	3.8	4	ND	ND
Arsenic	22	1.5	ND	3.3	ND	1	ND	ND
Barium	350	220	150	170	175	68	220	170
Cadmium	ND	0.112	7.9	0.4	7.12	16	ND	ND
Copper	22	20	84	12.2	12.1	13	22	ND
Iron	25000	14000	24000	14000	18900	10400	15000	13000
Lead	19	61	1100	65	119	132	140	11
Manganese	92	98	34	57	75	57	110	66
Mercury	ND	ND	ND	ND	ND	ND	ND	ND
Nickel	ND	81.9	240	3.2	74.3	96	ND	160
Selenium	ND	ND	ND	0.95	ND	1	ND	ND
Thallium	ND	ND	52	ND	13.7	18	ND	ND
Vanadium	210	230	290	220	193	176	220	200

Notes:

ND – Chemical not detected in specified source area; Appendix C provides detection limits for these compounds for individual soil samples.

NA – Laboratory analysis was not conducted for this chemical in the specified source area.

a – Exposure point concentrations are the lower of the maximum detected concentration and the 95% UCL on the mean concentration (see Appendix C).

All concentrations are in units of µg/kg except for metals which are in units of mg/kg.

**TABLE 5**  
**Exposure Assumptions**  
**for Ingestion of Soil by an On-Site Industrial Worker**

**Equation:**

$$\text{Intake (mg/kg - day)} = \frac{\text{CS} \times \text{IR} \times \text{CF} \times \text{FI} \times \text{EF} \times \text{ED}}{\text{BW} \times \text{AT}}$$

Parameter	Central Tendency Exposure	Reasonable Maximum Exposure
CS = Constituent concentration in soil (mg/kg)	chemical specific	chemical specific
IR = Ingestion rate (mg/day)	25 <sup>a</sup>	50 <sup>b</sup>
CF = Conversion factor (kg/mg)	1 x 10 <sup>-6</sup>	1 x 10 <sup>-6</sup>
FI = Fraction ingested from contaminated source (unitless)	1.0	1.0
EF = Exposure frequency (days/yr)	150	250 <sup>c</sup>
ED = Exposure duration (yrs)	5 <sup>c</sup>	25 <sup>c</sup>
BW = Body weight (kg)	70	70
AT = Averaging time (days)		
Non-carcinogens	1,825 (5 years)	9,125 (25 years)
Carcinogens	25,550 (70 years)	25,550 (70 years)

**Notes:**

a - CTE value estimated as one-half the RME value.

b - Based on December 11, 1997 memorandum from R. Machado, ENVIRON, to D. Ioven, USEPA Region III.

c - Standard default exposure assumptions for occupational exposure (USEPA 1989, 1991b).

**TABLE 6**  
**Exposure Assumptions**  
**for Dermal Contact with Soil by an On-Site Industrial Worker**

**Equation:**

$$\text{Intake (mg/kg - day)} = \frac{\text{CS} \times \text{CF} \times \text{SA} \times \text{AF} \times \text{ABS} \times \text{EF} \times \text{ED}}{\text{BW} \times \text{AT}}$$

Parameter	Central Tendency Exposure	Reasonable Maximum Exposure
<b>CS</b> = Constituent concentration in soil (mg/kg)	chemical specific	chemical specific
<b>CF</b> = Conversion factor (kg/mg)	$1 \times 10^{-6}$	$1 \times 10^{-6}$
<b>SA</b> = Skin surface area available for contact (cm <sup>2</sup> /event)	5,000 <sup>a</sup>	5,800 <sup>a</sup>
<b>AF</b> = Soil-to-skin adherence factor (mg/cm <sup>2</sup> )	0.02 <sup>b</sup>	0.04 <sup>b</sup>
<b>ABS</b> = Absorption factor (unitless)	chemical specific <sup>c</sup>	chemical specific <sup>c</sup>
<b>EF</b> = Exposure frequency (events/yr)	150	250 <sup>d</sup>
<b>ED</b> = Exposure duration (yrs)	5 <sup>d</sup>	25 <sup>d</sup>
<b>BW</b> = Body weight (kg)	70	70
<b>AT</b> = Averaging time (days)		
Non-carcinogens	1,825 (5 years)	9,125 (25 years)
Carcinogens	25,550 (70 years)	25,550 (70 years)

**Notes:**

- a – Based on exposure to 25% of the total body surface area (USEPA 1997b), assuming 50<sup>th</sup> percentile and 95 percentile total body surface areas for the CTE and RME scenarios, respectively.
- b – Soil adherence values based on the average of body-part-specific soil adherence data for a "groundskeeper" presented by USEPA (1997b), as discussed in text.
- c – Values for ABS were developed for individual chemicals based on guidance provided in the Region III Technical Guidance Manual entitled *Assessing Dermal Exposure from Soil*.
- d – Standard default exposure assumptions for occupational exposure (USEPA 1989, 1991b).

**TABLE 7**  
**Exposure Assumptions**  
**for Inhalation of Vapors by an On-Site Industrial Worker**

Equation:	$\text{Intake (mg/kg - day)} = \frac{\text{CA} \times \text{IR} \times \text{FI} \times \text{EF} \times \text{ED}}{\text{BW} \times \text{AT}}$	
Parameter	Central Tendency Exposure	Reasonable Maximum Exposure
<b>CA</b> = Constituent concentration in air (mg/m <sup>3</sup> )	chemical specific	chemical specific
<b>IR</b> = Inhalation rate (m <sup>3</sup> /day)	10 <sup>a</sup>	20 <sup>b</sup>
<b>FI</b> = Fraction inhaled from contaminated source (unitless)	1	1
<b>EF</b> = Exposure frequency (days/yr)	150	250 <sup>c</sup>
<b>ED</b> = Exposure duration (yrs)	5 <sup>c</sup>	25 <sup>c</sup>
<b>BW</b> = Body weight (kg)	70	70
<b>AT</b> = Averaging time (days)		
Non-carcinogens	1,825 (5 years)	9,125 (25 years)
Carcinogens	25,550 (70 years)	25,550 (70 years)

Notes:

a - Based on the standard default assumption of 20 m<sup>3</sup>/day, divided between 8-hr workday (10m<sup>3</sup>) and the remaining 16 hours (10 m<sup>3</sup>).

b - Source: (USEPA 1991)

c - Standard default exposure assumptions for occupational exposure (USEPA 1989, 1991b).

**TABLE 8**  
**Exposure Assumptions**  
**for Ingestion of Soil by an On-Site Resident**

**Equation:**

$$\text{Intake (mg/kg - day)} = \frac{\text{CS} \times \text{IR}_{\text{adj}} \times \text{CF} \times \text{FI} \times \text{EF}}{\text{AT}}$$

Parameter	Central Tendency Exposure	Reasonable Maximum Exposure
CS = Constituent concentration in soil (mg/kg)	chemical specific	chemical specific
IR <sub>adj</sub> = Ingestion rate (mg-yr/day-kg)	18.3 <sup>a</sup>	114.3 <sup>b</sup>
CF = Conversion factor (kg/mg)	1 x 10 <sup>-6</sup>	1 x 10 <sup>-6</sup>
FI = Fraction ingested from the site (unitless)	1.0	1.0
EF = Exposure frequency (days/yr)	234 <sup>c</sup>	350 <sup>c</sup>
AT = Averaging time (days)		
Non-carcinogens	3,285 (9 years)	10,950 (30 years)
Carcinogens	25,550 (70 years)	25,550 (70 years)

**Notes:**

- a - Based on child and adult values for ingestion rate (100 mg/day and 50 mg/day, respectively), exposure duration (2 years and 7 years, respectively), and body weight (15 kg and 70 kg, respectively).
- b - Based on child and adult values for ingestion rate (200 mg/day and 100 mg/day, respectively), exposure duration (6 years and 24 years, respectively), and body weight (15 kg and 70 kg, respectively).
- c - Standard default assumptions for residential exposure (USEPA 1991b, USEPA 1993a).

**TABLE 9**  
**Exposure Assumptions**  
**for Dermal Contact with Soil by an On-Site Resident**

Equation:	$\text{Intake (mg/kg - day)} = \frac{\text{CS} \times \text{CF} \times \text{SA}_{\text{adj}} \times \text{AF} \times \text{ABS} \times \text{EF}}{\text{AT}}$	
Parameter	Central Tendency Exposure	Reasonable Maximum Exposure
<b>CS</b> = Constituent concentration in soil (mg/kg)	Chemical specific	chemical specific
<b>CF</b> = Conversion factor (kg/mg)	$1 \times 10^{-6}$	$1 \times 10^{-6}$
<b>SA<sub>adj</sub></b> = Age-adjusted skin surface area factor (cm <sup>2</sup> -yr/event-kg)	733 <sup>a</sup>	2,788 <sup>b</sup>
<b>AF</b> = Soil-to-skin adherence factor (mg/cm <sup>2</sup> )	0.02 <sup>c</sup>	0.04 <sup>c</sup>
<b>ABS</b> = Absorption factor (unitless)	chemical specific <sup>d</sup>	chemical specific <sup>d</sup>
<b>EF</b> = Exposure frequency (events/yr)	234 <sup>e</sup>	350 <sup>e</sup>
<b>AT</b> = Averaging time (days)		
Non-carcinogens	3,285 (9 years)	10,950 (30 years)
Carcinogens	25,550 (70 years)	25,550 (70 years)

Notes:

a - Based on child and adult values for skin surface area exposed (1,750 cm<sup>2</sup> and 5,000 cm<sup>2</sup>, respectively), exposure duration (2 years and 7 years, respectively), and body weight (15 kg and 70 kg, respectively).

b - Based on child and adult values for skin surface area exposed (2,000 cm<sup>2</sup> and 5,800 cm<sup>2</sup>, respectively), exposure duration (6 years and 24 years, respectively), and body weight (15 kg and 70 kg, respectively).

c - Value developed for industrial worker was applied for this population to be conservative.

d - Values for ABS were developed for individual chemicals based on guidance provided in the Region III Technical Guidance Manual entitled *Assessing Dermal Exposure from Soil*.

e - Standard default assumptions for residential exposure (USEPA 1991b, USEPA 1993a).

**TABLE 10**  
**Exposure Assumptions**  
**for Inhalation of Vapors by an On-Site Resident**

**Equation:**

$$\text{Intake (mg/kg - day)} = \frac{\text{CA} \times \text{IR}_{\text{adj}} \times \text{FI} \times \text{EF}}{\text{AT}}$$

Parameter	Central Tendency Exposure	Reasonable Maximum Exposure
<b>CA</b> = Constituent concentration in air (mg/m <sup>3</sup> )	chemical specific	chemical specific
<b>IR<sub>adj</sub></b> = Age-adjusted inhalation factor (m <sup>3</sup> -yr/kg-day)	3.6 <sup>a</sup>	11.7 <sup>b</sup>
<b>FI</b> = Fraction inhaled from the site (unitless)	1	1
<b>EF</b> = Exposure frequency (days/yr)	234 <sup>c</sup>	350 <sup>c</sup>
<b>AT</b> = Averaging time (days) Non-carcinogens Carcinogens	3,285 (9 years) 25,550 (70 years)	10,950 (30 years) 25,550 (70 years)

**Notes:**

a – Based on child and adult values for inhalation rate (12 m<sup>3</sup>/day and 20 m<sup>3</sup>/day, respectively), exposure duration (2 years and 7 years, respectively), and body weight (15 kg and 70 kg, respectively).

b – Based on child and adult values for inhalation rate (12 m<sup>3</sup>/day and 20 m<sup>3</sup>/day, respectively), exposure duration (6 years and 24 years, respectively), and body weight (15 kg and 70 kg, respectively).

c – Standard default assumptions for residential exposure (USEPA 1991b, USEPA 1993a).

**TABLE 11**  
**Estimated Cancer Risks and HI Values for NDA**

Receptor	Cancer		Noncancer		
	CTE	RME	CTE	RME	
On-Site Industrial Worker	Ingestion of soil	$6 \times 10^{-5}$	$1 \times 10^{-3}$	5	16
	Dermal contact	$8 \times 10^{-6}$	$2 \times 10^{-4}$	1	4
	Inhalation of vapor	$3 \times 10^{-5}$	$3 \times 10^{-4}$	21	32
	Total	$1 \times 10^{-4}$	$1 \times 10^{-3}$	27	52
On-Site Resident	Ingestion of soil	$1 \times 10^{-3}$	$1 \times 10^{-2}$	43	121
	Dermal contact	$2 \times 10^{-5}$	$3 \times 10^{-4}$	2	7
	Inhalation of vapor	$2 \times 10^{-4}$	$5 \times 10^{-4}$	69	55
	Total	$1 \times 10^{-3}$	$1 \times 10^{-2}$	114	183

**TABLE 12**  
**Total Estimated Cancer Risks for MSGS Source Areas**

Area	On-site Industrial Worker		On-site Resident	
	CTE	RME	CTE	RME
ASP1	$4 \times 10^{-7}$	$7 \times 10^{-6}$	$6 \times 10^{-6}$	$5 \times 10^{-5}$
BWA	$3 \times 10^{-5}$	$2 \times 10^{-4}$	$2 \times 10^{-4}$	$5 \times 10^{-4}$
NDA	$1 \times 10^{-4}$	$1 \times 10^{-3}$	$1 \times 10^{-3}$	$1 \times 10^{-2}$
Pond 01	$5 \times 10^{-7}$	$4 \times 10^{-6}$	$3 \times 10^{-6}$	$2 \times 10^{-5}$
Pond 02	$9 \times 10^{-6}$	$8 \times 10^{-5}$	$6 \times 10^{-5}$	$2 \times 10^{-4}$
Pond 03	$1 \times 10^{-6}$	$1 \times 10^{-5}$	$1 \times 10^{-5}$	$7 \times 10^{-5}$
SP	$6 \times 10^{-7}$	$4 \times 10^{-6}$	$3 \times 10^{-6}$	$1 \times 10^{-5}$
SSA	$2 \times 10^{-9}$	$2 \times 10^{-8}$	$1 \times 10^{-8}$	$4 \times 10^{-8}$

**TABLE 13**  
**Total Estimated HI Values for MSGS Source Areas**

Area	On-site Industrial Worker		On-site Resident	
	CTE	RME	CTE	RME
ASP1	0.04	0.1	0.3	0.8
BWA	0.4	0.8	2	2
NDA	27	52	114	183
Pond 01	0.03	0.09	0.2	0.4
Pond 02	0.4	0.8	2	3
Pond 03	0.5	1	2	5
SP	0.03	0.09	0.1	0.4
SSA	0.02	0.08	0.1	0.4

**TABLE 14**  
**Estimated Cancer Risks Associated with Ingestion of On-Site Soils**

Area	On-Site Industrial Worker		On-Site Resident	
	CTE	RME	CTE	RME
ASP1	$3 \times 10^{-7}$	$6 \times 10^{-6}$	$6 \times 10^{-6}$	$5 \times 10^{-5}$
BWA	$7 \times 10^{-7}$	$1 \times 10^{-5}$	$1 \times 10^{-5}$	$1 \times 10^{-4}$
NDA	$6 \times 10^{-5}$	$1 \times 10^{-3}$	$1 \times 10^{-3}$	$1 \times 10^{-2}$
Pond 01	$6 \times 10^{-8}$	$9 \times 10^{-7}$	$9 \times 10^{-7}$	$8 \times 10^{-6}$
Pond 02	$5 \times 10^{-7}$	$9 \times 10^{-6}$	$9 \times 10^{-6}$	$8 \times 10^{-5}$
Pond 03	$4 \times 10^{-7}$	$7 \times 10^{-6}$	$7 \times 10^{-6}$	$6 \times 10^{-5}$
SP	$1 \times 10^{-8}$	$2 \times 10^{-7}$	$2 \times 10^{-7}$	$1 \times 10^{-6}$
SSA	$5 \times 10^{-11}$	$9 \times 10^{-10}$	$8 \times 10^{-10}$	$8 \times 10^{-9}$

Area	On-Site Industrial Worker		On-Site Resident	
	CTE	RME	CTE	RME
ASP1	$5 \times 10^{-8}$	$9 \times 10^{-7}$	$1 \times 10^{-7}$	$2 \times 10^{-6}$
BWA	$4 \times 10^{-8}$	$7 \times 10^{-7}$	$1 \times 10^{-7}$	$1 \times 10^{-6}$
NDA	$8 \times 10^{-6}$	$2 \times 10^{-4}$	$2 \times 10^{-5}$	$3 \times 10^{-4}$
Pond 01	$7 \times 10^{-9}$	$1 \times 10^{-7}$	$2 \times 10^{-8}$	$3 \times 10^{-7}$
Pond 02	$7 \times 10^{-8}$	$1 \times 10^{-6}$	$2 \times 10^{-7}$	$3 \times 10^{-6}$
Pond 03	$7 \times 10^{-8}$	$1 \times 10^{-6}$	$2 \times 10^{-7}$	$2 \times 10^{-6}$
SP	$2 \times 10^{-10}$	$5 \times 10^{-9}$	$8 \times 10^{-10}$	$9 \times 10^{-9}$
SSA	$1 \times 10^{-13}$	$3 \times 10^{-12}$	$5 \times 10^{-13}$	$5 \times 10^{-12}$

**TABLE 16**  
**Estimated Cancer Risks Associated with Inhalation of Vapors**

Area	On-Site Industrial Worker		On-Site Resident	
	CTE	RME	CTE	RME
ASP1	0	0	0	0
BWA	$2 \times 10^{-5}$	$2 \times 10^{-4}$	$1 \times 10^{-4}$	$4 \times 10^{-4}$
NDA	$3 \times 10^{-5}$	$3 \times 10^{-4}$	$2 \times 10^{-4}$	$5 \times 10^{-4}$
Pond 01	$4 \times 10^{-7}$	$3 \times 10^{-6}$	$2 \times 10^{-6}$	$6 \times 10^{-6}$
Pond 02	$9 \times 10^{-6}$	$6 \times 10^{-5}$	$5 \times 10^{-5}$	$1 \times 10^{-4}$
Pond 03	$6 \times 10^{-7}$	$5 \times 10^{-6}$	$4 \times 10^{-6}$	$9 \times 10^{-6}$
SP	$5 \times 10^{-7}$	$4 \times 10^{-6}$	$3 \times 10^{-6}$	$8 \times 10^{-6}$
SSA	$2 \times 10^{-9}$	$2 \times 10^{-8}$	$1 \times 10^{-8}$	$3 \times 10^{-8}$

**TABLE 17**  
**Estimated Noncancer Risks Associated with Ingestion of On-Site Soils**

Area	On-Site Industrial Worker		On-Site Resident	
	CTE	RME	CTE	RME
ASP1	0.03	0.1	0.3	0.7
BWA	0.046	0.15	0.4	1.1
NDA	5	16	43	121
Pond 01	0.014	0.05	0.13	0.35
Pond 02	0.07	0.2	0.6	2
Pond 03	0.1	0.5	1.3	4
SP	0.013	0.04	0.1	0.3
SSA	0.01	0.04	0.1	0.3

TABLE 18 Estimated Noncancer Risks Associated with Dermal Contact with On-Site Soils				
Area	On-Site Industrial Worker		On-Site Resident	
	CTE	RME	CTE	RME
ASP1	0.01	0.04	0.02	0.07
BWA	0.02	0.07	0.03	0.1
NDA	1.0	4	2	7
Pond 01	$9 \times 10^{-3}$	0.03	0.02	0.05
Pond 02	0.03	0.1	0.05	0.2
Pond 03	0.06	0.2	0.1	0.3
SP	$9 \times 10^{-3}$	0.04	0.02	0.06
SSA	$8 \times 10^{-3}$	0.03	0.01	0.05

**TABLE 19**  
**Estimated Noncancer Risks Associated with Inhalation of Vapors**

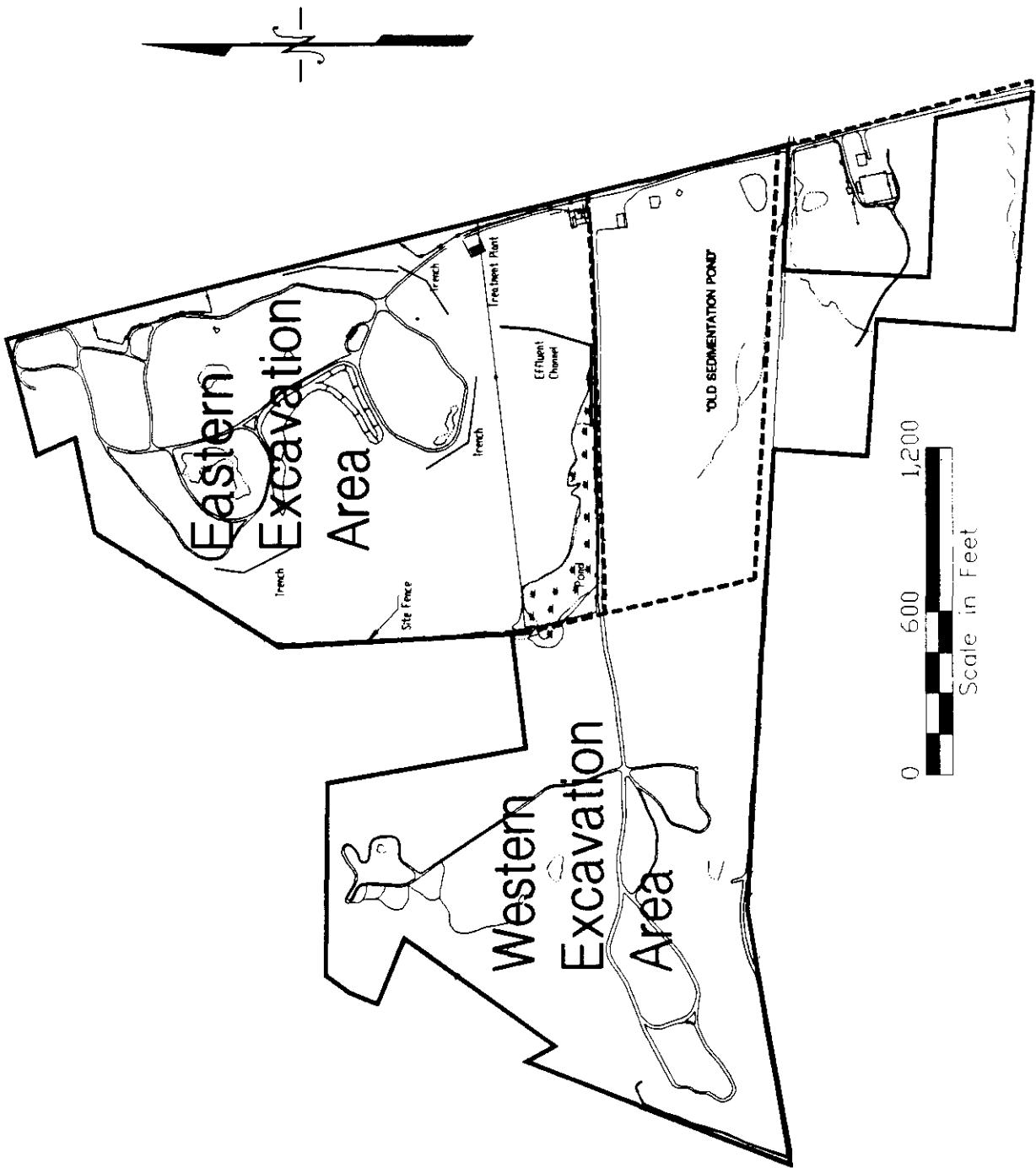
Area	On-Site Industrial Worker		On-Site Resident	
	CTE	RME	CTE	RME
ASP1	$2 \times 10^{-6}$	$3 \times 10^{-6}$	$6 \times 10^{-6}$	$5 \times 10^{-6}$
BWA	0.38	0.56	1.2	1.0
NDA	21	32	69	55
Pond 01	$3 \times 10^{-3}$	$5 \times 10^{-3}$	0.01	$9 \times 10^{-3}$
Pond 02	0.3	0.45	1.0	0.8
Pond 03	0.3	0.4	0.8	0.7
SP	$4 \times 10^{-3}$	$6 \times 10^{-3}$	0.01	0.01
SSA	$3 \times 10^{-3}$	$5 \times 10^{-3}$	0.01	$8 \times 10^{-3}$

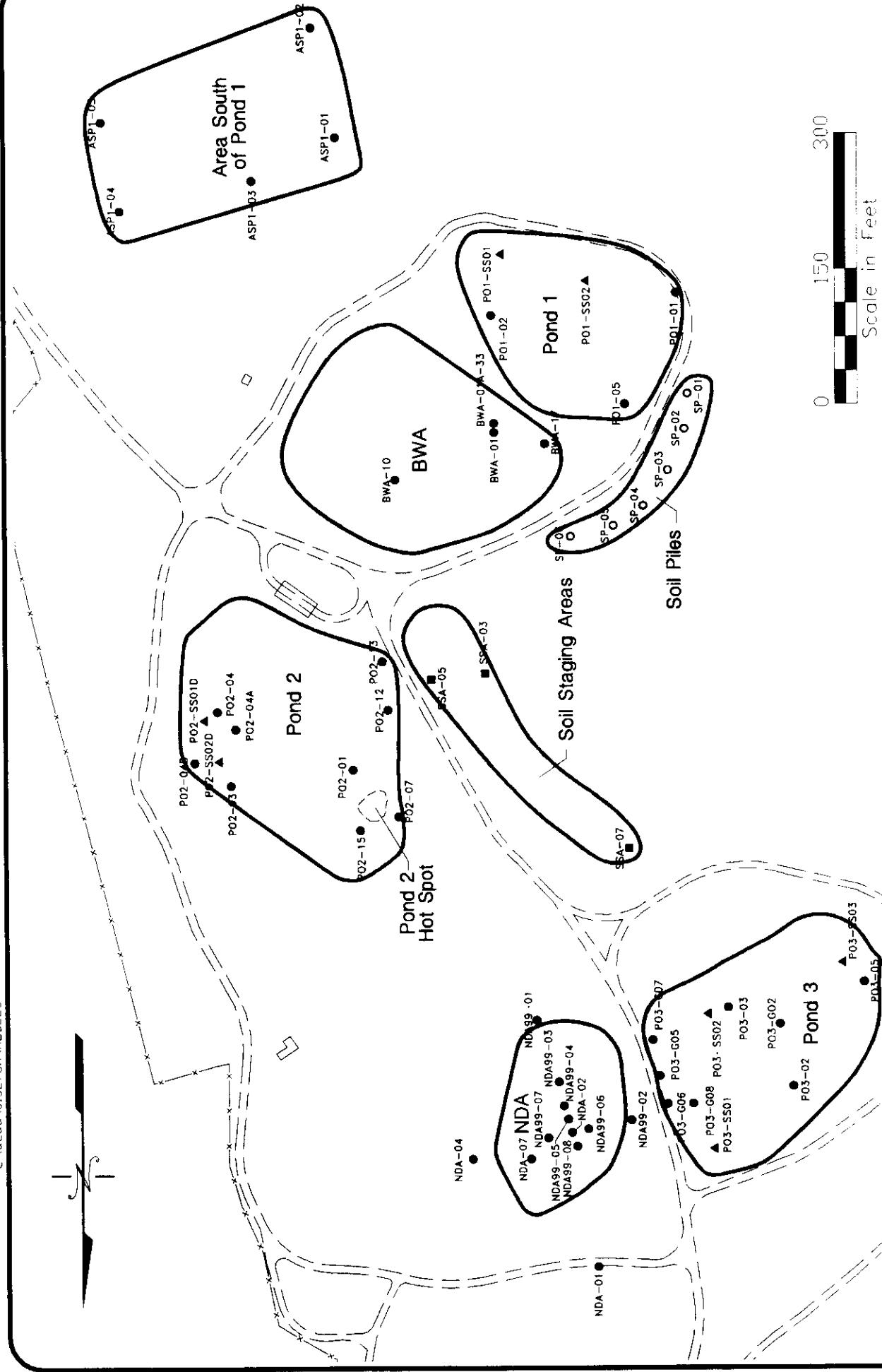
## **FIGURES**

# ENVIRON

SITE PLAN OF ENTIRE MARYLAND SAND, GRAVEL AND STONE SITE

Figure 1





# ENVIRON

MARYLAND SAND, GRAVEL AND STONE  
ELKTON, MARYLAND

Figure 2

**APPENDIX A**  
**SELECTION OF CHEMICALS OF POTENTIAL CONCERN**

**TABLE A-1**  
**Identification of Chemicals of Potential Concern (COPCs)**

Chemical	# of Samples	# of Detects	Max Concentration	RBC Value	Not Detected Value	No RBC Value	Not Detected Above RBC Value	Chemical of Potential Concern
<b>Volatile Organic Chemicals</b>								
1,1,1-TRICHLOROETHANE	207	57	65000000	UG/KG	2.2E+06	UG/KG		X
1,1,2,2-TETRACHLOROETHANE	207	4	69	UG/KG	3.2E+03	UG/KG		X
1,1,2-TRICHLOROETHANE	207	8	19	UG/KG	1.1E+04	UG/KG		X
1,1-DICHLOROETHANE	207	32	2100	UG/KG	7.8E+05	UG/KG		X
1,1-DICHLOROETHENE	229	22	79637	UG/KG	1.1E+03	UG/KG		X
1,2-DICHLOROETHANE (TOTAL)	207	16	5200	UG/KG	7.0E+03	UG/KG		X
1,2-DICHLOROETHENE	30	1	11	UG/KG	7.8E+04	UG/KG		X
1,2-DICHLOROPROPANE	207	1	1	UG/KG	9.4E+03	UG/KG		X
2-BUTANONE	207	79	32000	UG/KG	4.7E+06	UG/KG		X
2-HEXANONE	207	17	250000	UG/KG	3.1E+05	UG/KG		X
4-METHYL-2-PENTANONE	207	86	4400000	UG/KG	6.3E+05	UG/KG		X
ACETONE	207	195	4400000	UG/KG	7.8E+05	UG/KG		X
BENZENE	229	88	2300000	UG/KG	1.2E+04	UG/KG		X
BROMODICHLOROMETHANE	207	0	0	UG/KG	1.0E+04	UG/KG		X
BROMOFORM	207	1	860	UG/KG	8.1E+04	UG/KG		X
BROMOMETHANE	207	0	0	UG/KG		UG/KG		X
CARBON DISULFIDE	207	4	15	UG/KG	7.8E+05	UG/KG		X
CARBON TETRACHLORIDE	207	2	7	UG/KG	4.9E+03	UG/KG		X
CHLOROBENZENE	207	144	27000000	UG/KG	1.6E+05	UG/KG		X
CHLOROETHANE	207	30	580	UG/KG	2.2E+05	UG/KG		X
CHLOROFORM	207	21	5200	UG/KG	1.0E+05	UG/KG		X
CHLOROMETHANE	207	6	150	UG/KG	4.9E+04	UG/KG		X
CIS-1,2-DICHLOROETHENE	199	44	8900	UG/KG	7.8E+04	UG/KG		X
CIS-1,3-DICHLOROPROPENE	207	0	0	UG/KG	3.5E+03	UG/KG		X
DBROMOCHLOROMETHANE	207	3	5000000	UG/KG	7.6E+03	UG/KG		X
ETHYL BENZENE	229	89	9300000	UG/KG	7.8E+05	UG/KG		X
M,P-XYLENE	199	118	39000000	UG/KG	1.6E+07	UG/KG		X
METHYLENE CHLORIDE	207	170	1000000	UG/KG	8.5E+04	UG/KG		X
OXYLENE	199	97	1600000	UG/KG	1.6E+07	UG/KG		X
STYRENE	207	6	30000	UG/KG	1.6E+06	UG/KG		X
TETRACHLOROETHENE	229	100	11000000	UG/KG	1.2E+04	UG/KG		X
TOLUENE	229	167	23000000	UG/KG	1.6E+06	UG/KG		X
TRANS-1,2-DICHLOROETHENE	199	13	7261	UG/KG	1.6E+05	UG/KG		X
TRANS-1,3-DICHLOROPROPENE	207	1	110	UG/KG	3.5E+03	UG/KG		X
TRICHLOROETHENE	229	86	14000000	UG/KG	5.8E+04	UG/KG		X
VINYL CHLORIDE	229	16	970	UG/KG	3.4E+02	UG/KG		X
XYLENE (TOTAL)	30	5	2500	UG/KG	1.6E+07	UG/KG		X
<b>Semi-volatile Organic Chemicals</b>								
1,2,4-TRICHLOROBENZENE	UG/KG	36	300000	UG/KG	7.8E+04	UG/KG		X
1,2-DICHLOROBENZENE	202	36	200000	UG/KG	7.0E+05	UG/KG		X
1,3-DICHLOROBENZENE	202	15	1000000	UG/KG	7.0E+03	UG/KG		X

**TABLE A-1**

Chemical	# of Samples	# of Detects	Max Concentration	RBC Value	Not Detected		Chemical of Potential Concern	
					Detected	No RBC Value	No Detected Above RBC	Potential Concern
1,4-DICHLOROBENZENE	202	47	1000000	UG/KG	2.7E+04	UG/KG	X	X
2,2-OXYBIS(-CHLOROPROpane)	30	0	0	UG/KG	9.1E+03	UG/KG	X	
2,4,5-TRICHLOROPHENOL	202	0	0	UG/KG	7.8E+05	UG/KG	X	
2,4,6-TRICHLOROPHENOL	202	0	0	UG/KG	5.8E+04	UG/KG	X	
2,4-DICHLOROPHENOL	202	0	0	UG/KG	2.3E+04	UG/KG	X	
2,4-DIMETHYLPHENOL	202	7	29000	UG/KG	1.6E+05	UG/KG	X	
2,4-DINITROPHENOL	202	0	0	UG/KG	1.6E+04	UG/KG	X	
2,4-DINITROTOLUENE	202	1	2900	UG/KG	1.6E+04	UG/KG	X	
2,6-DINITROTOLUENE	202	2	3000	UG/KG	7.8E+03	UG/KG	X	
2-CHLORONAPHTHALENE	202	0	0	UG/KG	6.3E+05	UG/KG	X	
2-CHLOROPHENOL	202	3	1700	UG/KG	3.9E+04	UG/KG	X	
2-METHYLNAPHTHALENE	202	39	100000	UG/KG	1.6E+05	UG/KG	X	
2-METHYLPHENOL	202	22	13000	UG/KG	3.9E+05	UG/KG	X	
2-NITROANILINE	202	1	24000	UG/KG	N/A		X	
2-NITROPHENOL	202	0	0	UG/KG	N/A		X	
3,3'-DICHLORBENZIDINE	202	3	2400	UG/KG	1.4E+03	UG/KG	X	
3-NITROANILINE	202	0	0	UG/KG	N/A		X	
4,6-DINITRO-2-METHYLPHENOL	202	3	750	UG/KG	7.8E+02	UG/KG	X	
4-BROMOPHENYL-PHENYLETHER	202	0	0	UG/KG	N/A		X	
4-CHLORO-3-METHYLPHENOL	202	1	5800	UG/KG	N/A		X	
4-CHLOROANILINE	202	1	360	UG/KG	3.1E+04	UG/KG	X	
4-CHLOROPHENYL-PHENYLETHER	202	0	0	UG/KG	N/A		X	
4-METHYLPHENOL	202	31	100000	UG/KG	3.9E+04	UG/KG	X	
4-NITROANILINE	202	0	0	UG/KG	N/A		X	
4-NITROPHENOL	202	0	0	UG/KG	6.3E+04	UG/KG	X	
ACENAPHTHENE	202	7	470	UG/KG	4.7E+05	UG/KG	X	
ACENAPHTHYLENE	202	1	110	UG/KG	N/A		X	
ANTHRACENE	202	1	2300	UG/KG	2.3E+06	UG/KG	X	
BENZO(A)ANTHRACENE	202	2	600	UG/KG	8.7E+02	UG/KG	X	
BENZO(A)PYRENE	202	2	500	UG/KG	8.7E+01	UG/KG	X	
BENZO(B)FLUORANTHENE	202	2	1200	UG/KG	8.7E+02	UG/KG	X	
BENZO(G,H,I)PERYLENE	202	1	430	UG/KG	N/A		X	
BENZO(K)FLUORANTHENE	202	6	1200	UG/KG	8.7E+03	UG/KG	X	
BIS(2-CHLOROETHoxy)METHANE	202	0	0	UG/KG	N/A		X	
BIS(2-CHLOROETHYL)ETHER	202	2	68000	UG/KG	5.8E+02	UG/KG	X	
BIS(2-CHLOROISOPROPYL)ETHER	172	0	0	UG/KG	9.1E+03	UG/KG	X	
BIS(2-ETHYLHEXYL)PHTHALATE	202	141	200000	UG/KG	4.6E+04	UG/KG	X	
BUTYLBENZYLPHthalate	202	44	300000	UG/KG	1.6E+06	UG/KG	X	
CARBAZOLE	30	0	0	UG/KG	3.4E+04	UG/KG	X	
CHRYSENE	202	4	790	UG/KG	8.7E+04	UG/KG	X	
DI-N-BUTYLPHthalate	202	165	300000	UG/KG	7.8E+05	UG/KG	X	
DI-N-OCTYLPHthalate	202	28	310000	UG/KG	1.6E+05	UG/KG	X	

**TABLE A-1**  
**Identification of Chemicals of Potential Concern (COPCs)**

Chemical	# of Samples	# of Detects	Max Concentration	RBC Value	Not Detected	No RBC Value	Not Detected Above RBC	Chemical of Potential Concern
DIBENZ(A,H)ANTHRACENE	202	1	130	UG/KG	8.7E+01	UG/KG		X
DBENZOFURAN	202	6	4600	UG/KG	3.1E+04	UG/KG		X
DIETHYLPHthalATE	202	25	6700	UG/KG	6.3E+06	UG/KG		X
DMETHYLPHthalATE	202	3	1100	UG/KG	7.8E+07	UG/KG		X
FLUORANTHENE	202	9	700	UG/KG	3.1E+05	UG/KG		X
FLUORENE	202	14	8300	UG/KG	3.1E+05	UG/KG		X
HEXACHLOROBENZENE	202	1	760	UG/KG	4.0E+02	UG/KG		X
HEXACHLOROBUTADIENE	202	1	1700	UG/KG	8.2E+03	UG/KG		X
HEXACHLOROCYCLOPENTADIENE	202	0	0	UG/KG	5.5E+04	UG/KG		X
HEXACHLOROETHANE	202	1	5500	UG/KG	4.6E+04	UG/KG		X
INDENO(1,2,3-CD)PYRENE	202	1	390	UG/KG	8.7E+02	UG/KG		X
ISOPHORONE	202	21	100000	UG/KG	6.7E+05	UG/KG		X
N-NITROSO-DI-N-PROPYLAMINE	202	0	0	UG/KG	9.1E+01	UG/KG		X
N-NITROSODIPHENYLAMINE	172	3	6400	UG/KG	1.3E+05	UG/KG		X
N-NITROSODIPHENYLAMINE (1)	30	0	0	UG/KG	1.3E+05	UG/KG		X
NAPHTHALENE	202	64	300000	UG/KG	1.6E+05	UG/KG		X
NITROBENZENE	202	1	4000	UG/KG	3.9E+03	UG/KG		X
PENTACHLOROPHENOL	202	3	630	UG/KG	5.3E+03	UG/KG		X
PHENANTHRENE	202	20	10000	UG/KG	N/A			X
PHENOL	202	8	49000	UG/KG	4.7E+06	UG/KG		X
PYRENE	202	8	980	UG/KG	2.3E+05	UG/KG		X
<b>Pesticides/PCBs</b>								
4,4'-DDD	69	3	4.2	UG/KG	2.7E+03	UG/KG		X
4,4'-DDDE	69	7	0.86	UG/KG	1.9E+03	UG/KG		X
4,4'-DDT	69	6	1.5	UG/KG	1.9E+03	UG/KG		X
ALDRIN	69	2	39000	UG/KG	3.8E+01	UG/KG		X
ALPHA CHLORDANE	69	4	1	UG/KG	1.8E+03	UG/KG		X
ALPHA-BHC	69	3	5.7	UG/KG	1.0E+02	UG/KG		X
AROCLOR-1016	69	0	0	UG/KG	5.5E+02	UG/KG		X
AROCLOR-1221	69	0	0	UG/KG	3.2E+02	UG/KG		X
AROCLOR-1232	69	0	0	UG/KG	3.2E+02	UG/KG		X
AROCLOR-1242	69	5	40000	UG/KG	3.2E+02	UG/KG		X
AROCLOR-1248	69	0	0	UG/KG	3.2E+02	UG/KG		X
AROCLOR-1254	69	0	0	UG/KG	3.2E+02	UG/KG		X
AROCLOR-1260	69	2	130	UG/KG	3.2E+02	UG/KG		X
BETA-BHC	69	0	0	UG/KG	3.5E+02	UG/KG		X
DELTA-BHC	69	6	0.56	UG/KG	N/A			X
DELDREN	69	6	2.9	UG/KG	4.0E+01	UG/KG		X
ENDOSULFAN I	69	2	1.9	UG/KG	4.7E+04	UG/KG		X
ENDOSULFAN II	69	2	5.2	UG/KG	4.7E+04	UG/KG		X
ENDOSULFAN SULFATE	69	5	5.2	UG/KG	N/A			X
ENDRIN	69	4	0.65	UG/KG	2.3E+03	UG/KG		X

**TABLE A-1**  
**Identification of Chemicals of Potential Concern (COPCs)**

Chemical	# of Samples	# of Detects	Max Concentration	RBC Value	Not Detected	No RBC Value	Not Above RBC	Chemical of Potential Concern
ENDRIN ALDEHYDE	69	0	0	UG/KG	2.3E+03	UG/KG	X	
ENDRIN KETONE	69	4	8.3	UG/KG	2.3E+03	UG/KG	X	
GAMMA CHLORDANE	69	2	0.25	UG/KG	1.8E+03	UG/KG	X	
GAMMA-BHC (LINDANE)	69	5	0.27	UG/KG	4.9E+02	UG/KG	X	
HEPTACHLOR	69	5	0.15	UG/KG	1.4E+02	UG/KG	X	
HEPTACHLOR EPOXIDE	69	2	0.45	UG/KG	7.0E+01	UG/KG	X	
P,P'-METHOXYCHLOR	69	11	2400	UG/KG	3.9E+04	UG/KG	X	
TOXAPHENE	69	0	0	UG/KG	5.8E+02	UG/KG	X	
<b>Metals</b>								
ALUMINUM	27	27	6550	MG/KG	7.8E+03	MG/KG	X	
ANTIMONY	199	11	160	MG/KG	3.1E+00	MG/KG	X	
ARSENIC	199	29	740	MG/KG	4.3E-01	MG/KG	X	
BARIUM	199	197	2600	MG/KG	5.5E+02	MG/KG	X	
BERYLLIUM	27	21	0	MG/KG	1.6E+01	MG/KG		
CADMIUM	199	16	640	MG/KG	7.8E+00	MG/KG	X	
CALCIUM	199	139	5600	MG/KG	N/A			
CHROMIUM	199	120	3700	MG/KG	1.2E+04	MG/KG	X	
COBALT	199	28	58	MG/KG	4.7E+02	MG/KG		
COPPER	199	48	710	MG/KG	3.1E+02	MG/KG	X	
IRON	199	199	730000	MG/KG	2.3E+03	MG/KG	X	
LEAD	199	94	34000	MG/KG	N/A			
MAGNESIUM	27	24	822	MG/KG	N/A			
MANGANESE	199	120	340	MG/KG	1.6E+02	MG/KG	X	
MERCURY	199	3	280	MG/KG	2.3E+00	MG/KG	X	
NICKEL	199	34	650	MG/KG	1.6E+02	MG/KG	X	
POTASSIUM	199	197	15000	MG/KG	N/A			
SELENIUM	199	9	130	MG/KG	3.9E+01	MG/KG	X	
SILVER	199	1	4.1	MG/KG	3.9E+01	MG/KG		
SODIUM	27	27	2150	MG/KG	N/A			
THALLIUM	199	9	900	MG/KG	5.5E-01	MG/KG	X	
VANADIUM	199	198	2000	MG/KG	5.5E-01	MG/KG	X	
ZINC	199	143	700	MG/KG	2.3E+03	MG/KG	X	
<b>Miscellaneous</b>								
AMMONIA	10	7	60.1	MG/KG	N/A			
CYANIDE, TOTAL	29	0	0	MG/KG	1.6E+02	MG/KG	X	

**APPENDIX B**  
**EVALUATION OF CHEMICALS WITHOUT TOXICITY VALUES**

## **APPENDIX B**

### **Evaluation of Chemicals without Toxicity Data**

In conducting risk assessments, chemicals are frequently screened out or qualitative risk estimates cannot be developed because sufficient quantitative toxicity information is not available. In this BRA addendum, toxicity values were not available for 12 chemicals detected in soil (surface and subsurface) at the site. Of these 12 chemicals, four are essential nutrients (calcium, magnesium, potassium, and sodium). For the remaining nine chemicals (2-nitroaniline, 4-chloro-3-methylphenol, acenaphthylene, benzo(g,h,i)perylene, phenanthrene, delta-BHC, endosulfan sulfate, ammonia), USEPA toxicity values have not been developed. While not including these chemicals in the risk assessment adds some additional uncertainty, there is no available information to suggest that these chemicals pose a potentially significant health risk at the levels present in on-site soils. A summary of the available information for these 12 chemicals is presented in Table B-1.

**TABLE B-1**  
**Chemicals without Quantitative Toxicity Data**

Chemical	Comments
2-Nitroaniline	The available toxicity data are inadequate to assess the toxicity of 2-nitroaniline. This chemical was detected in 1 of 202 samples. Due to the low frequency of detection, it is unlikely to pose a significant concern at the site.
4-Chloro-3-Methylphenol	The available toxicity data are inadequate to assess the toxicity of 4-chloro-3-methylphenol. This chemical was detected in 1 of 202 samples. Due to the low frequency of detection, it is unlikely to pose a significant concern at the site.
Acenaphthylene	The available toxicity data are inadequate to assess the toxicity of acenaphthylene. This chemical was detected in 1 of 202 samples. Due to the low frequency of detection, it is unlikely to pose a significant concern at the site.
Benzo(g,h,i)perylene	The available toxicity data are inadequate to assess the toxicity benzo(g,h,i)perylene. This chemical was detected in 1 of 202 samples. Due to the low frequency of detection, it is unlikely to pose a significant concern at the site.
Phenanthrene	USEPA's weight-of-evidence classification for phenanthrene is Group D, "not classifiable as to human carcinogenicity" based on no human data and inadequate animal data (i.e., a single gavage study in rats and skin painting and injection studies in mice) (IRIS). Phenanthrene was detected in 20 of 202 on-site samples at a maximum concentration of 10,000 ppb. It is not possible to estimate the human health risks associated with the presence of this compound.
Delta-BHC	USEPA's weight-of-evidence classification for delta-BHC is Group D, "not classifiable as to human carcinogenicity" based on no human data and inadequate animal. Delta BHC was detected in 6 of 69 on-site samples at a maximum concentration of 0.56 ppb. Delta BHC is not likely to adversely impact the site.
Endosulfan Sulfate	The available toxicity data are inadequate to assess the toxicity of endosulfan sulfate. This chemical was detected in 5 of 67 samples at a maximum concentration of 5.2 ppb. Based on the RBC for endosulfan of 47,000 mg/kg, it is unlikely that the presence of this compound poses a significant risk to human health.
Calcium Magnesium Potassium Sodium Ammonia	These inorganic substances are naturally occurring and are typically found in the human diet. Therefore, it is unlikely that the presence of these compounds at the site poses a significant risk to human health.

**APPENDIX C**  
**CONCENTRATIONS OF CHEMICALS OF POTENTIAL CONCERN**

## **APPENDIX C**

### **Concentrations of Chemicals of Potential Concern**

The following tables summarize the soil analytical data base used in the BRA Addendum for the eight source areas. In addition to the individual soil sample results from the SI and supplemental soil sampling program, the tables in this appendix present the maximum detected concentration for each chemical within each source area. Also, if the results of ten or more laboratory analyses are available for a specific source area, a 95 percent upper confidence limit on the mean (95% UCL) concentration is also presented. In calculating the 95% UCL, the data were evaluated using the W-test to determine the best-fit statistical distribution (i.e., normal or lognormal). A blank space in the table indicates that the chemical was not analyzed for in the specified soil sample.

The exposure point concentration (identified as "EPC" in the tables) for an individual chemical within each source area, which is also presented in the following tables, represents the maximum concentration for source areas with fewer than ten samples, or the lower of the maximum concentration and the 95% UCL concentration for source areas with ten or more samples. It should be noted that for the NDA, analytical data for ten or more samples were available for only certain chemicals evaluated in the supplemental sampling program.

**TABLE C-1**  
**Soil Concentrations for Chemicals of Potential Concern at ASPI**

CHEMICAL	ASPI-01 3,04'-3,25'	ASPI-02 3,16'-3,5'	ASPI-03 4,5'-4,75'	ASPI-04 5'-7'	ASPI-04 7'-9'	ASPI-05 2,33'-2,75'	Max Concentration	Log 95% UCL	EPC
<b>I. VOLATILE ORGANIC COMPOUNDS</b>									
1,1,1-TRICHLOROETHANE, UG/KG	<9	<9	<11	<23	<28	<11	ND	N/A	ND
1,1-DICHLOROETHENE, UG/KG	<9	<9	<11	<23	<28	<11	ND	N/A	ND
4-METHYL-2-PENTANONE, UG/KG	<9	<9	<11	<23	<28	<11	ND	N/A	ND
ACETONE, UG/KG									N/A
BENZENE, UG/KG	<9	<9	<11	<23	<28	<11	ND	N/A	ND
CHLOROBENZENE, UG/KG	<9	<9	<11	<23	<28	<11	ND	N/A	ND
DIBROMOCHLOROMETHANE, UG/KG	<9	<9	<11	<23	<28	<11	ND	N/A	ND
ETHYLBENZENE, UG/KG	<9	<9	<11	<23	<28	<11	ND	N/A	ND
M,P-XYLENE, UG/KG	<19	<19	<21		<56	<23	ND	N/A	ND
METHYLENE CHLORIDE, UG/KG	<9	<9	<11	<23	<28	<11	ND	N/A	ND
O,XYLYLENE, UG/KG	<9	<9	<11	<23	<28	<11	ND	N/A	ND
TETRACHLOROETHENE, UG/KG	<9	<9	<11		<28	<11	ND	N/A	ND
TOLUENE, UG/KG	<9	<9	<11		<28	<11	ND	N/A	ND
TRICHLOROETHENE, UG/KG	<9	<9	<11	<23	<28	<11	ND	N/A	ND
VINYL CHLORIDE, UG/KG	<23	<23	<27	<23	<28	<28	ND	N/A	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>									
1,2,4-TRICHLOROBENZENE, UG/KG	<660	<660	<730	<670	<690	<730	ND	N/A	ND
1,3-DICHLOROBENZENE, UG/KG	<660	<660	<730	<670	<690	<730	ND	N/A	ND
1,4-DICHLOROBENZENE, UG/KG	<660	<660	<730	<670	<690	<730	ND	N/A	ND
3,3'-DICHLOROBENZIDINE, UG/KG	<1300	<1300	<1400	<1300	<1400	<1400	ND	N/A	ND
4-METHYLPHENOL, UG/KG	<660	<660	<730	<670	<690	<730	ND	N/A	ND
BENZO(A)PYRENE, UG/KG	<660	<660	<730	<670	<690	<730	ND	N/A	ND
BENZO(B)FLUORANTHENE, UG/KG	<660	<660	<730	<670	<690	<730	ND	N/A	ND
BIS(2-CHLOROETHYL)ETHER, UG/KG	<660	<660	<730	<670	<690	<730	ND	N/A	ND
BIS(2-ETHYLHEXYL)PHTHALATE, UG/KG									
DIBENZ(A,H)ANTHRACENE, UG/KG	<660	<660	<730	<670	<690	<730	ND	N/A	ND
HEXACHLOROBENZENE, UG/KG	<660	<660	<730	<670	<690	<730	ND	N/A	ND
NAPHTHALENE, UG/KG	<660	<660	<730	46	<690	<730	46	N/A	46
NITROBENZENE, UG/KG	<660	<660	<730	<670	<690	<730	ND	N/A	ND
<b>III. PESTICIDES/PCB</b>									
ALDRIN, UG/KG	<1100						ND	N/A	ND
AROCLOR-1242, UG/KG	<1100						ND	N/A	ND

**TABLE C-1**  
**Soil Concentrations for Chemicals of Potential Concern at ASP1**

CHEMICAL	ASP1-01 3.04'-3.25'	ASP1-02 3.16'-3.5'	ASP1-03 4.5'-4.75'	ASP1-04 5'-7'	ASP1-04 7'-9'	ASP1-05 2.33'-2.75'	Max Concentration	Log 95% UCL	EPC
<b>IV. METALS</b>									
ANTIMONY, MG/KG	<5	<5	<5	<5	<5	<5	<5	ND	N/A
ARSENIC, MG/KG	15	<10	22	<10	<10	<10	<10	22	N/A
BARIUM, MG/KG	300	260	64	100	210	350	350	N/A	350
CADMIUM, MG/KG	<5	<5	<5	<5	<5	<5	<5	ND	ND
COPPER, MG/KG	<20	<20	22	20	<20	21	22	N/A	22
IRON, MG/KG	23000	14000	25000	7700	13000	15000	25000	N/A	25000
LEAD, MG/KG	<10	12	10	<10	<10	19	19	N/A	19
MANGANESE, MG/KG	69	84	55	50	92	79	92	N/A	92
MERCURY, MG/KG	<10	<10	<10	<10	<10	<10	<10	ND	N/A
NICKEL, MG/KG	<60	<60	<60	<60	<60	<60	<60	ND	ND
SELENIUM, MG/KG	<7	<7	<7	<7	<7	<7	<7	ND	ND
THALLIUM, MG/KG	<20	<20	<20	<20	<20	<20	<20	ND	N/A
VANADIUM, MG/KG	150	180	150	210	190	180	210	N/A	210

**TABLE C-2**  
Soil Concentrations for Chemicals of Potential Concern at BWA

CHEMICAL	BWA-01 10'-12'	BWA-01A-33 Surface	BWA-10 10'-14'	BWA-17 10'-12'	Max Concentration	95% UCL	Log EPC
<b>I. VOLATILE ORGANIC COMPOUNDS</b>							
1,1,1-TRICHLOROETHANE, UG/KG	1100000 <31000	<16000 64000	2200 <2800	<7005.5 <7005.5	1100000 64000	N/A N/A	1100000 64000
1,1-DICHLOROETHENE, UG/KG	95000 95000	<16000 <16000	<2800 14000	<7005.5 14000	95000 ND	N/A N/A	95000 ND
4-METHYL-2-PENTANONE, UG/KG							
ACETONE, UG/KG							
BENZENE, UG/KG	6700 670000	34000 64000	<2800 4100	<7005.5 <7005.5	34000 670000	N/A N/A	34000 670000
CHLOROBENZENE, UG/KG	<310000	<16000 4000	<2800 490	<7005.5 <7005.5	ND 53000	N/A N/A	ND 53000
DIBROMOCHLOROMETHANE, UG/KG							
ETHYLBENZENE, UG/KG	53000 220000	120000 1400		<14000 <14000	220000 ND	N/A N/A	220000 ND
M,P-XYLENE, UG/KG							
METHYLENE CHLORIDE, UG/KG							
O-XYLENE, UG/KG	95000 350000	6500 7300	910 9100	95000 <7005.5	95000 350000	N/A N/A	95000 350000
TETRACHLOROETHENE, UG/KG	830000 200000	530000 310000	1800 4000	<7005.5 <7005.5	830000 200000	N/A N/A	830000 200000
TOLUENE, UG/KG							
TRICHLOROETHENE, UG/KG							
VINYL CHLORIDE, UG/KG	<31000 <31000	<16000 <2800		<7005.5 <7005.5	ND ND	N/A N/A	ND ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>							
1,2,4-TRICHLOROBENZENE, UG/KG	300000 19000	1800 <24000	6000 2000	143500 2500	300000 19000	N/A N/A	300000 19000
1,3-DICHLOROBENZENE, UG/KG	65000 65000	<24000 <24000	64000 11000		65000 65000	N/A N/A	65000 65000
1,4-DICHLOROBENZENE, UG/KG							
3,3'-DICHLOROBENZIDINE, UG/KG	<1500 410	<46000 <24000	12 280	<6200 <5865	12 410	N/A N/A	12 410
4-METHYLPHENOL, UG/KG							
BENZO(A)PYRENE, UG/KG	<790 <790	<24000 <24000	<790 <790	<5865 <5865	ND ND	N/A N/A	ND ND
BENZO(B)FLUORANTHENE, UG/KG							
BIS(2-CHLOROETHYL)ETHER, UG/KG	<790 9400	<24000 <24000	<790 7200	<5865 840	ND 9400	N/A N/A	ND 9400
BIS(2-ETHYLHEXYL)PHTHALATE, UG/KG	<790 <790	<24000 <24000	<790 <790	<5865 <5865	ND ND	N/A N/A	ND ND
DIBENZ(A,H)ANTHRACENE, UG/KG							
HEXACHLOROBENZENE, UG/KG	<790 7400	<24000 <24000	<790 3500	<5865 2300	ND 7400	N/A N/A	ND 7400
NAPHTHALENE, UG/KG							
NITROBENZENE, UG/KG	<790	<24000 <24000	<790 <790	<5865 ND	ND ND	N/A N/A	ND ND
<b>III. PESTICIDES/PCBs</b>							
ALDRIN, UG/KG							
AROCLOR-1242, UG/KG							
	<36000 <36000		<1.8 82		ND 82	N/A N/A	ND 82

**TABLE C-2**  
**Soil Concentrations for Chemicals of Potential Concern at BWA**

CHEMICAL	BWA-01 10'-12'	BWA-01A-33 Surface	BWA-10 10'-14'	BWA-17 10'-12'	Max Concentration	Log 95% UCL	EPC
<b>IV. METALS</b>							
ANTIMONY, MG/KG	<5	<5	<5	<2.7	ND	N/A	ND
ARSENIC, MG/KG	<10	<10	<10	1.5	1.5	N/A	1.5
BARIUM, MG/KG	220	<10	150	43.05	220	N/A	220
CADMIUM, MG/KG	<5	<5	<5	0.12	0.12	N/A	0.12
COPPER, MG/KG	<20	20	<20	3.2	20	N/A	20
IRON, MG/KG	9700	14000	5100	5450	14000	N/A	14000
LEAD, MG/KG	39	61	17	11.8	61	N/A	61
MANGANESE, MG/KG	98	93	<30	3.4	98	N/A	98
MERCURY, MG/KG	<10	<10	<10	<5.055	ND	N/A	ND
NICKEL, MG/KG	<60	<60	<60	81.9	81.9	N/A	81.9
SELENIUM, MG/KG	<7	<7	<7	<3.86	ND	N/A	ND
THALLIUM, MG/KG	<20	<20	<20	<10.38	ND	N/A	ND
VANADIUM, MG/KG	230	180	230	91.75	230	N/A	230

**TABLE C-3**  
**Soil Concentrations for Chemicals of Potential Concern at NDA**

CHEMICAL	NDA-01 7'-9'	NDA-02 7'-9'	NDA-04 4'-7'	NDA-07 10'-12'	NDA-99-01 4'-8'	NDA-99-01 8'-12'	NDA-99-02 4'-8'
<b>I. VOLATILE ORGANIC COMPOUNDS</b>							
1,1,1-TRICHLOROETHANE, UG/KG	36	65000000	23	<27			
1,1-DICHLOROETHENE, UG/KG	<10	<5700000	<13	<27			
4-METHYL-2-PENTANONE, UG/KG	<10	<5700000	<13	<27			
ACETONE, UG/KG		4400000	<13	<27			
BENZENE, UG/KG	1	2300000	<13	<27			
CHLOROBENZENE, UG/KG	<10	270000000	<13	<27			
DIBROMOCHLOROMETHANE, UG/KG	<10	<5700000	<13	<27			
ETHYLBENZENE, UG/KG	<10	9300000	<13	<27			
M,P-XYLENE, UG/KG	>20	39000000	<27	<54			
METHYLENE CHLORIDE, UG/KG							
O-XYLENE, UG/KG	<10	16000000	<13	<27			
TETRACHLOROETHENE, UG/KG	<10	110000000	<13	<27			
TOLUENE, UG/KG	12	230000000	<27				
TRICHLOROETHENE, UG/KG	5	14000000	<13	<27			
VINYL CHLORIDE, UG/KG	<26	<5700000	<33	<27			
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>							
1,2,4-TRICHLOROBENZENE, UG/KG	<670	24000	<860	<790			
1,3-DICHLOROBENZENE, UG/KG	<670	1000000	<860	<790			
1,4-DICHLOROBENZENE, UG/KG	<670	600000	<860	<790			
3,3'-DICHLOROBENZIDINE, UG/KG	<1300	2400	<1700	<1500			
4-METHYLPHENOL, UG/KG	<670	<79000	<860	<790			
BENZO(A)PYRENE, UG/KG	<670	<79000	<860	<790			
BENZO(B)FLUORANTHENE, UG/KG	<670	<79000	<860	<790			
BIS(2-CHLOROETHYL)ETHER, UG/KG	<670	68000	<860	<790			
BIS(2-ETHYLHEXYL)PHTHALATE, UG/KG							
DIBENZ(A,H)ANTHRACENE, UG/KG	<670	<79000	<860	<790			
HEXPHTHALENE, UG/KG	<670	<79000	<860	<790			
NAPHTHOBENZENE, UG/KG							
NITROBENZENE, UG/KG	<670	15000	<860	<790			
<b>III. PESTICIDES/PCB</b>							
ALDRIN, UG/KG							
AROCLOR-1242, UG/KG							

**TABLE C-3**  
**Soil Concentrations for Chemicals of Potential Concern at NDA**

CHEMICAL	NDA-01 7'-9'	NDA-02 7'-9'	NDA-04 4'-7'	NDA-07 10'-12'	NDA-09-01 4'-8'	NDA-09-01 8'-12'	NDA99-02 4'-8'
<b>IV. METALS</b>							
ANTIMONY, MG/KG	<5	9.7	<5	<5	<5	<5	<5
ARSENIC, MG/KG	<10	<10	<10	<10	<10	<10	<10
BARIUM, MG/KG	91	140	95	95	150	150	150
CADMIUM, MG/KG	<5	7.9	<5	<5	<5	<5	<5
COPPER, MG/KG	<20	84	<20	<20	<20	<20	<20
IRON, MG/KG	6400	24000	19000	19000	60000	60000	60000
LEAD, MG/KG	<10	1100	14	14	<10	<10	<10
MANGANESE, MG/KG	31	<30	<30	<30	34	34	34
MERCURY, MG/KG	<10	<10	<10	<10	<10	<10	<10
NICKEL, MG/KG	240	<60	<60	<60	150	150	150
SELENIUM, MG/KG	<7	<7	<7	<7	<7	<7	<7
THALLIUM, MG/KG	<20	52	<20	<20	<20	<20	<20
VANADIUM, MG/KG	210	290	190	190	210	210	210

**TABLE C-3**  
**Soil Concentrations for Chemicals of Potential Concern at NDA**

CHEMICAL	NDA99-02 8'-12'	NDA99-03 0'-4'	NDA99-03 4'-8'	NDA99-03 8'-12'	NDA99-04 0'-4'	NDA99-04 4'-8'
<b>I. VOLATILE ORGANIC COMPOUNDS</b>						
1,1,1-TRICHLOROETHANE, UG/KG						11579
1,1-DICHLOROETHENE, UG/KG						
4-METHYL-2-PENTANONE, UG/KG						
ACETONE, UG/KG						
BENZENE, UG/KG						56507
CHLOROBENZENE, UG/KG						
DIBROMOCHLOROMETHANE, UG/KG						
ETHYLBENZENE, UG/KG						
M,P-XYLENE, UG/KG						
METHYLENE CHLORIDE, UG/KG						
O-XYLYLENE, UG/KG						
TETRACHLOROETHENE, UG/KG	188	2125				
TOLUENE, UG/KG						
TRICHLOROETHENE, UG/KG	67	599				
VINYL CHLORIDE, UG/KG						
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>						
1,2,4-TRICHLOROBENZENE, UG/KG						
1,3-DICHLOROBENZENE, UG/KG						
1,4-DICHLOROBENZENE, UG/KG						
3,3'-DICHLOROBENZIDINE, UG/KG						
4-METHYLPHENOL, UG/KG						
BENZO(A)PYRENE, UG/KG						
BENZO(B)FLUORANTHENE, UG/KG						
BIS(2-CHLOROETHYL)ETHER, UG/KG						
BIS(2-ETHYLHEXYL)PHTHALATE, UG/KG						
DIBENZ(A,H)ANTHRACENE, UG/KG						
HEXACHLOROBENZENE, UG/KG						
NAPHTHALENE, UG/KG						
NITROBENZENE, UG/KG						
<b>III. PESTICIDES/PCBs</b>						
ALDRIN, UG/KG						
AROCLOR-1242, UG/KG						

**TABLE C-3**  
**Soil Concentrations for Chemicals of Potential Concern at NDA**

CHEMICAL	NDA99-02 8'-12'	NDA99-03 0'-4'	NDA99-03 4'-8'	NDA99-03 8'-12'	NDA99-04 0'-4'	NDA99-04 4'-8'
<b>IV. METALS</b>						
ANTIMONY, MG/KG						
ARSENIC, MG/KG						
BARIUM, MG/KG						
CADMIUM, MG/KG						
COPPER, MG/KG						
IRON, MG/KG						
LEAD, MG/KG						
MANGANESE, MG/KG						
MERCURY, MG/KG						
NICKEL, MG/KG						
SELENIUM, MG/KG						
THALLIUM, MG/KG						
VANADIUM, MG/KG						

**TABLE C-3**  
**Soil Concentrations for Chemicals of Potential Concern at NDA**

CHEMICAL	NDA99-04 8'-12'	NDA99-05 0'-4'	NDA99-05 4'-8'	NDA99-05 8'-12'	NDA99-06 0'-4'	NDA99-06 4'-8'
<b>I. VOLATILE ORGANIC COMPOUNDS</b>						
1,1,1-TRICHLOROETHANE, UG/KG						9
1,1-DICHLOROETHENE, UG/KG						
4-METHYL-2-PENTANONE, UG/KG						
ACETONE, UG/KG						
BENZENE, UG/KG	1,596				103431	
CHLOROBENZENE, UG/KG						
DIBROMOCHLOROMETHANE, UG/KG						
ETHYLBENZENE, UG/KG	2291				1092693	
M,P-XYLENE, UG/KG	9862				4112790	
METHYLENE CHLORIDE, UG/KG						
O-XYLENE, UG/KG	3990				2527062	
TETRACHLOROETHENE, UG/KG	35892	7426	2925		12884178	95
TOLUENE, UG/KG	27622				20844306	
TRICHLOROETHENE, UG/KG	7463	1911	765		2984144	23
VINYL CHLORIDE, UG/KG						
<b>II. SEMIVOLATILE ORGANIC COMPOUND</b>						
1,2,4-TRICHLOROBENZENE, UG/KG						
1,3-DICHLOROBENZENE, UG/KG						
1,4-DICHLOROBENZENE, UG/KG						
3,3'-DICHLOROBENZIDINE, UG/KG						
4-METHYLPHENOL, UG/KG						
BENZO(A)PYRENE, UG/KG						
BENZO(B)FLUORANTHENE, UG/KG						
BIS(2-CHLOROETHYL)ETHER, UG/KG						
BIS(2-ETHYLHEXYL)PHTHALATE, UG/KG						
DIBENZ(A,H)ANTHRACENE, UG/KG						
HEXACHLOROBENZENE, UG/KG						
NAPHTHALENE, UG/KG						
NITROBENZENE, UG/KG						
<b>III. PESTICIDES/PCB</b>						
ALDRIN, UG/KG						
AROCLOR-1242, UG/KG						

**TABLE C-3**  
**Soil Concentrations for Chemicals of Potential Concern at NDA**

CHEMICAL	NDA99-04 8'-12'	NDA99-05 0'-4'	NDA99-05 4'-8'	NDA99-05 8'-12'	NDA99-06 0'-4'	NDA99-06 4'-8'
	<b>IV. METALS</b>					
ANTIMONY, MG/KG						
ARSENIC, MG/KG						
BARIUM, MG/KG						
CADMIUM, MG/KG						
COPPER, MG/KG						
IRON, MG/KG						
LEAD, MG/KG						
MANGANESE, MG/KG						
MERCURY, MG/KG						
NICKEL, MG/KG						
SELENIUM, MG/KG						
THALLIUM, MG/KG						
VANADIUM, MG/KG						

**TABLE C-3**  
**Soil Concentrations for Chemicals of Potential Concern at NDA**

CHEMICAL	NDA99-06 8'-12'	NDA99-07 0'-4'	NDA99-07 4'-8'	NDA99-07 8'-12'	NDA99-08 0'-4'	NDA99-08 4'-8'
<b>I. VOLATILE ORGANIC COMPOUNDS</b>						
1,1,1-TRICHLOROETHANE, UG/KG	16	8				13
1,1-DICHLOROETHENE, UG/KG						
4-METHYL-2-PENTANONE, UG/KG						
ACETONE, UG/KG						
BENZENE, UG/KG						7
CHLOROBENZENE, UG/KG						
DIBROMOCHLOROMETHANE, UG/KG						
ETHYLBENZENE, UG/KG						
M,P-XYLENE, UG/KG						
METHYLENE CHLORIDE, UG/KG						
O-XYLENE, UG/KG						
TETRACHLOROETHENE, UG/KG						
TOLUENE, UG/KG	1815	344	764	58374	430	2000
TRICHLOROETHENE, UG/KG	19		37	36091		
VINYL CHLORIDE, UG/KG	504	49	206	13292	118	476
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>						
1,2,4-TRICHLOROBENZENE, UG/KG						
1,3-DICHLOROBENZENE, UG/KG						
1,4-DICHLOROBENZENE, UG/KG						
3,3'-DICHLOROBENZIDINE, UG/KG						
4-METHYLPHENOL, UG/KG						
BENZO(A)PYRENE, UG/KG						
BENZO(B)FLUORANTHENE, UG/KG						
BIS(2-CHLOROETHYL)ETHER, UG/KG						
BIS(2-ETHYLHEXYL)PHTHALATE, UG/KG						
DIBENZ(A,H)ANTHRACENE, UG/KG						
HEXACHLOROBENZENE, UG/KG						
NAPHTHALENE, UG/KG						
NITROBENZENE, UG/KG						
<b>III. PESTICIDES/PCBs</b>						
ALDRIN, UG/KG						
AROCLOR-1242, UG/KG						

**TABLE C-3**  
**Soil Concentrations for Chemicals of Potential Concern at NDA**

CHEMICAL	NDA99-06 8'-12'	NDA99-07 0'-4'	NDA99-07 4'-8'	NDA99-07 8'-12'	NDA99-08 0'-4'	NDA99-08 4'-8'
<b>IV. METALS</b>						
ANTIMONY, MG/KG						
ARSENIC, MG/KG						
BARIUM, MG/KG						
CADMIUM, MG/KG						
COPPER, MG/KG						
IRON, MG/KG						
LEAD, MG/KG						
MANGANESE, MG/KG						
MERCURY, MG/KG						
NICKEL, MG/KG						
SELENIUM, MG/KG						
THALLIUM, MG/KG						
VANADIUM, MG/KG						

**TABLE C-3**  
**Soil Concentrations for Chemicals of Potential Concern at NDA**

CHEMICAL	NDA99-08 8'-12'	Max Concentration	95% UCL	Log EPC
<b>I. VOLATILE ORGANIC COMPOUNDS</b>				
1,1,1-TRICHLOROETHANE, UG/KG	6.50E+07	N/A	6.50E+07	
1,1-DICHLOROETHENE, UG/KG	7.96E+04	1.03E+16	7.96E+04	
4-METHYL-2-PENTANONE, UG/KG	ND	N/A	ND	
ACETONE, UG/KG	4.40E+06	N/A	4.40E+06	
BENZENE, UG/KG	2.30E+06	N/A	2.30E+06	
CHLOROBENZENE, UG/KG	2.70E+08	N/A	2.70E+08	
DIBROMOCHLOROMETHANE, UG/KG	ND	N/A	ND	
ETHYLBENZENE, UG/KG	9.30E+06	N/A	9.30E+06	
M,P-XYLENE, UG/KG	3.90E+07	N/A	3.90E+07	
METHYLENE CHLORIDE, UG/KG		N/A	N/A	
O-XYLENE, UG/KG	1.60E+07	N/A	1.60E+07	
TETRACHLOROETHENE, UG/KG	1.10E+08	1.45E+10	1.10E+08	
TOLUENE, UG/KG	2.30E+08	N/A	2.30E+08	
TRICHLOROETHENE, UG/KG	1.40E+07	3.09E+08	1.40E+07	
VINYL CHLORIDE, UG/KG	ND	ND	ND	
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>				
1,2,4-TRICHLOROBENZENE, UG/KG	24000	N/A	24000	
1,3-DICHLOROBENZENE, UG/KG	1000000	N/A	1000000	
1,4-DICHLOROBENZENE, UG/KG	600000	N/A	600000	
3,3'-DICHLOROBENZIDINE, UG/KG	2400	N/A	2400	
4-METHYLPHENOL, UG/KG	ND	N/A	ND	
BENZO(A)PYRENE, UG/KG	ND	N/A	ND	
BENZO(B)FLUORANTHENE, UG/KG	ND	N/A	ND	
BIS(2-CHLOROETHYL)ETHER, UG/KG	68000	N/A	68000	
BIS(2-ETHYLHEXYL)PHTHALATE, UG/KG	ND	N/A	ND	
DIBENZ(A,H)ANTHRACENE, UG/KG	ND	N/A	ND	
HEXAACHLOROBENZENE, UG/KG	ND	N/A	ND	
NAPHTHALENE, UG/KG	15000	N/A	15000	
NITROBENZENE, UG/KG	4000	N/A	4000	
<b>III. PESTICIDES/PCB</b>				
ALDRIN, UG/KG		N/A	ND	
AROCLOR-1242, UG/KG		N/A	ND	

**TABLE C-3**  
**Soil Concentrations for Chemicals of Potential Concern at NDA**

CHEMICAL	NDAA9-08 8'-12'	Max Concentration	Log 95% UCL	EPC
<b>IV. METALS</b>				
ANTIMONY, MG/KG	9.7	N/A	9.7	
ARSENIC, MG/KG	ND	N/A	ND	
BARIUM, MG/KG	150	N/A	150	
CADMIUM, MG/KG	7.9	N/A	7.9	
COPPER, MG/KG	84	N/A	84	
IRON, MG/KG	24000	N/A	24000	
LEAD, MG/KG	1100	N/A	1100	
MANGANESE, MG/KG	34	N/A	34	
MERCURY, MG/KG	ND	N/A	ND	
NICKEL, MG/KG	240	N/A	240	
SELENIUM, MG/KG	ND	N/A	ND	
THALLIUM, MG/KG	52	N/A	52	
VANADIUM, MG/KG	290	N/A	290	

TABLE C-4  
Soil Concentrations for Chemicals of Potential Concern at Pond 01

TABLE C-4

## Soil Concentrations for Chemicals of Potential Concern at Pond 01

CHEMICAL	Pond01-01 10'-11'	Pond01-02 9.5'-10'	Pond01-02B 6.3'-6.8'	Pond01-05 9.5'-10'	Pond01-SS01 7'-8'	Pond01-SS02 Surface	Max Conc	Log 95% UCL	EPC
<b>IV. METALS</b>									
ANTIMONY, MG/KG	<5	<5	<5	<5	<5	<2.76	<5	ND	N/A
ARSENIC, MG/KG	<10	<10	<10	<10	<10	3.3	<10	3.3	N/A
BARIUM, MG/KG	24	130	100	160	87	53.9	170	170	3.3
CADMIUM, MG/KG	<5	<5	<5	<5	<5	0.4	<5	0.4	ND
COPPER, MG/KG	<20	<20	<20	<20	<20	12.2	<20	12.2	ND
IRON, MG/KG	13000	3500	7300	3900	8200	14000	14000	14000	0.4
LEAD, MG/KG	<10	<10	<10	<10	<10	21.25	65	65	ND
MANGANESE, MG/KG	<30	<30	<30	<30	<30	45	26.1	57	57
MERCURY, MG/KG	<10	<10	<10	<10	<10	<5.07	<10	ND	N/A
NICKEL, MG/KG	<60	<60	<60	<60	<60	3.2	<60	3.2	ND
SELENIUM, MG/KG	<7	<7	<7	<7	<7	0.95	<7	0.95	ND
THALLIUM, MG/KG	<20	<20	<20	<20	<20	<10.495	<20	ND	ND
VANADIUM, MG/KG	220	170	170	200	130	119.8	200	220	ND

**TABLE C-5**  
**Soil Concentrations for Chemicals of Potential Concern at Pond 02**

CHEMICAL	Pond02-01 10'-12'	Pond02-03 6'	Pond02-03 10.5'-12'	Pond02-04 7'-8'	Pond02-04A 5.5'-7'	Pond02-04B 7'-9'	Pond02-07 7'-10'	Pond02-12 7'-8'
<b>I. VOLATILE ORGANIC COMPOUNDS</b>								
1,1,1-TRICHLOROETHANE, UG/KG								
1,1-DICHLOROETHENE, UG/KG	24000	140000	<10250	930	<3400	82000	<28	<3550
1,1-DICHLOROETHENE, UG/KG	12000	<13000	<10250	<2100	<3400	6400	<28	<3550
4-METHYL-2-PENTANONE, UG/KG	38000	<13000	<10250	1500	12000	11000	<28	<3550
ACETONE, UG/KG			270000					<3900
BENZENE, UG/KG	35000	1500	<10250	260	<3400	18000	<28	<3550
CHLOROBENZENE, UG/KG	96000	2900	2400	390000		340000		710
DBROMOCHLOROMETHANE, UG/KG	<58	<13000	<10250	<2100	<3400	<2950	<28	<3550
ETHYLBENZENE, UG/KG	48000	100000	<10250	38000		8600	<28	<3550
M,P-XYLENE, UG/KG	81000	580000	<13000	150000		30500	<56	430
METHYLENE CHLORIDE, UG/KG	15000			550000				<3900
O-XYLENE, UG/KG	300000	300000	<10250	64000		15850	<28	200
TERACHLOROETHENE, UG/KG	73000	630000	1000	150000			8	370
TOLUENE, UG/KG	26000	2200	1700	200000		190000		450
TRICHLOROETHENE, UG/KG	26000	95000	<10250	5400	<3400	5700	<28	<3550
VINYL CHLORIDE, UG/KG	970	<13000	<10250	<5200	<8500	<7350	<28	<3550
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>								
1,2,4-TRICHLOROBENZENE, UG/KG								
1,3-DICHLOROBENZENE, UG/KG	590	600	<730	<660	<800	350	<730	<14000
1,3-DICHLOROBENZENE, UG/KG	<18000	<13000	<730	<660	<800	<860	<730	<14000
1,4-DICHLOROBENZENE, UG/KG	65000	31000	120	<660	<800	430	<730	<14000
3,3'-DICHLOROBENZIDINE, UG/KG	<35000	<26000	<1400	<1300	<1600	<1700	<1400	<27000
4-METHYLPHENOL, UG/KG	20000	<13000	81	48	130	300	<730	<14000
BENZO(A)PYRENE, UG/KG	<18000	<13000	<730	<660	<800	<860	<730	<14000
BENZO(B)FLUORANTHENE, UG/KG	<18000	<13000	<730	<660	<800	<860	<730	<14000
BIS(2-CHLOROETHYL)ETHER, UG/KG	<18000	<13000	<730	<660	<800	<860	<730	<14000
BIS(2-ETHYLHEXYL)PHTHALATE, UG/KG	40000	200000				18000		
DIBENZ(A,H)ANTHRACENE, UG/KG	<18000	<13000	<730	<660	<800	<860	<730	<14000
HEXACHLOROBENZENE, UG/KG	<18000	<13000	<730	<660	<800	<860	<730	<14000
NAPHTHALENE, UG/KG	12000	8900	320	<660	13	2300	<730	<14000
NITROBENZENE, UG/KG	<18000	<13000	<730	<660	<800	<860	<730	<14000
<b>III. PESTICIDES/PCBs</b>								
ALDRIN, UG/KG								
AROCLOR-1242, UG/KG								

TABLE C-5

**Soil Concentrations for Chemicals of Potential Concern at Pond 02**

CHEMICAL	Pond02-01 10'-12'	Pond02-03 6'	Pond02-03 10.5'-12'	Pond02-04 7'-8'	Pond02-04A 5.5'-7'	Pond02-04B 7'-9'	Pond02-07 7'-10'	Pond02-12 7'-8'
<b>IV. METALS</b>								
ANTIMONY, MG/KG	8.4	<5	<5	<5	<5	<5	<5	<5
ARSENIC, MG/KG	<10	<10	<10	<10	<10	<10	<10	<10
BARIUM, MG/KG	200	40	59	46	160	190	130	50
CADMIUM, MG/KG	26	<5	<5	<5	<5	<5	<5	<5
COPPER, MG/KG	<20	20	<20	<20	<20	<20	<20	<20
IRON, MG/KG	10000	25000	17000	10000	3800	7000	8900	6300
LEAD, MG/KG	510	34	<10	<10	<10	14	<10	<10
MANGANESE, MG/KG	41	<30	60	<30	<30	58	72	38
MERCURY, MG/KG	<10	<10	<10	<10	<10	<10	<10	<10
NICKEL, MG/KG	<60	<60	<60	250	<60	<60	<60	<60
SELENIUM, MG/KG	<7	<7	<7	<7	<7	<7	<7	<7
THALLIUM, MG/KG	25	<20	<20	<20	<20	<20	<20	<20
VANADIUM, MG/KG	220	130	170	130	160	190	220	160

**TABLE C-5**  
**Soil Concentrations for Chemicals of Potential Concern at Pond 02**

CHEMICAL	Pond02-13 10'-12'	Pond02-15 9'-11'	Pond02-SS01D Surface	Pond02-SS02D Surface	Max Concentration	95% UCL	Log EPC
<b>I. VOLATILE ORGANIC COMPOUNDS</b>							
1,1,1-TRICHLOROETHANE, UG/KG	<13	<7900	<26	<25.5	140000	4.93E+09	140000
1,1-DICHLOROETHENE, UG/KG	<13	<7900	<26	<25.5	12000	2.04E+07	12000
4-METHYL-2-PENTANONE, UG/KG	230	<7900	<26	<25.5	38000	2.78E+07	38000
ACETONE, UG/KG		<7900			270000	N/A	270000
BENZENE, UG/KG	110	<7900	<26	1	35000	1.31E+08	35000
CHLOROBENZENE, UG/KG	120	<7900	<26	33	390000	N/A	390000
DIBROMOCHLOROMETHANE, UG/KG	<13	<7900	<26	<25.5	ND	3.23E+06	ND
ETHYLBENZENE, UG/KG	3	<7900	<26	<25.5	100000	1.84E+11	100000
M,P-XYLENE, UG/KG	5	<16000	1	5	580000	2.41E+15	580000
METHYLENE CHLORIDE, UG/KG		<7900			550000	N/A	550000
O-XYLENE, UG/KG	5	<7900	<26	3	300000	4.40E+12	300000
TETRACHLOROETHENE, UG/KG	<13	<7900	<26	7	630000	4.43E+14	630000
TOLUENE, UG/KG	370	<7900	<26	20	200000	8.57E+09	200000
TRICHLOROETHENE, UG/KG	<13	<7900	<26	6	95000	1.35E+09	95000
VINYL CHLORIDE, UG/KG	<13	<7900	<26	<25.5	970	970	970
<b>II. SEMIVOLATILE ORGANIC COMPOUND:</b>							
1,2,4-TRICHLOROBENZENE, UG/KG	<635	<780	<690	<720	600	1430	600
1,3-DICHLOROBENZENE, UG/KG	<635	<780	<690	<720	ND	8790	ND
1,4-DICHLOROBENZENE, UG/KG	<635	<780	<690	<720	65000	168000	65000
3,3'-DICHLOROBENZIDINE, UG/KG	<1050	<1500	<1400	<1400	ND	17600	ND
4-METHYLPHENOL, UG/KG	<635	<780	<690	<720	20000	44600	20000
BENZO(A)PYRENE, UG/KG	<635	<780	<690	<720	ND	8790	ND
BENZO(B)FLUORANTHENE, UG/KG	<635	<780	<690	<720	ND	8790	ND
BIS(2-CHLOROETHYL)ETHER, UG/KG	<635	<780	<690	<720	ND	8790	ND
BIS(2-ETHYLHEXYL)PHTHALATE, UG/KG	<400		<690		200000	N/A	200000
DIBENZ(A,H)ANTHRACENE, UG/KG	<635	<780	<690	<720	ND	8790	ND
HEXACHLOROBENZENE, UG/KG	<635	<780	<690	<720	ND	8790	ND
NAPHTHALENE, UG/KG	<635	<780	<690	<720	12000	71300	12000
NITROBENZENE, UG/KG	<635	<780	<690	<720	ND	8790	ND
<b>III. PESTICIDES/PCB</b>							
ALDRIN, UG/KG	<2		<1100		ND	N/A	ND
AROCLOR-1242, UG/KG	<40		<1100		ND	N/A	ND

TABLE C-5  
Soil Concentrations for Chemicals of Potential Concern at Pond 02

CHEMICAL	Pond02-13 10'-12'	Pond02-15 9'-11'	Pond02-SS01D Surface	Pond02-SS02D Surface	Max Concentration	Log 95% UCL	EPC
<b>IV. METALS</b>							
ANTIMONY, MG/KG	<2.73	<5	<5	<5	8.4	3.83	3.83
ARSENIC, MG/KG	<5.325	<10	<10	<10	ND	5.37	ND
BARIUM, MG/KG	128.85	83	97	180	200	175	175
CADMIUM, MG/KG	<2.56	<5	<5	<5	26	7.12	7.12
COPPER, MG/KG	<20	<20	<20	<20	20	12.1	12.1
IRON, MG/KG	2468.5	4200	11000	24000	25000	18900	18900
LEAD, MG/KG	6.55	<10	<10	13	510	119	119
MANGANESE, MG/KG	2	<30	61	75	75	126	75
MERCURY, MG/KG	<5.06	<10	<10	<10	ND	5.42	ND
NICKEL, MG/KG	<30.29	<60	<60	<60	250	74.3	74.3
SELENIUM, MG/KG	<3.91	<7	<7	<7	ND	3.73	ND
THALLIUM, MG/KG	<10.435	<20	<20	<20	25	13.7	13.7
VANADIUM, MG/KG	138.55	200	160	200	220	193	193

**TABLE C-6**  
**Soil Concentrations for Chemicals of Potential Concern at Pond 03**

CHEMICAL	Pond03-02 8'-9'	Pond03-02 10'-11'	Pond03-03 10'-12'	Pond03-05 10'-12'	Pond03-G2 2'-4'	Pond03-G5 6'-8'	Pond03-G6 4'-7'	Pond03-G6 7'-8'	Pond03-G6 10'-11'
<b>I. VOLATILE ORGANIC COMPOUNDS</b>									
1,1,1-TRICHLOROETHANE, UG/KG	<28	9	71	<26	370	<21	1800	420	300
1,1-DICHLOROETHENE, UG/KG	<28	<27	<29	<26	<28	<21	40	<26	<24
4-METHYL-2-PENTANONE, UG/KG	<28	<27	<29	120	39	<21	13000	1200	840
ACETONE, UG/KG									
BENZENE, UG/KG	<28	<27	6	30	5	1	170		
CHLOROBENZENE, UG/KG	<28	6	140	670	580000	<21	<714.5	<26	530
DIBROMOCHLOROMETHANE, UG/KG	<28	<27	<29	<26	<28	<21	170		<24
ETHYLBENZENE, UG/KG	3	4	14	32	180000	<21			
M,P-XYLENE, UG/KG	2	2	19	68	620000	<42			
METHYLENE CHLORIDE, UG/KG	<28								
O-XYLENE, UG/KG	2	3	27	64	620000	<21	390	33	
TETRACHLOROETHENE, UG/KG	<28	2	18	650000	<21			140	
TOLUENE, UG/KG			130	1000				900	520
TRICHLOROETHENE, UG/KG	<28	14	9	<26	1800	<21	1400	92	53
VINYL CHLORIDE, UG/KG	<28	<27	33	<26	<28	<21	<714.5	<26	<24
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>									
1,2,4-TRICHLOROBENZENE, UG/KG	<740	<730	<830	<840	14000	<730	<585	<700	<680
1,3-DICHLOROBENZENE, UG/KG	<740	<730	<830	<840	<33000	<730	<585	<700	<680
1,4-DICHLOROBENZENE, UG/KG	<740	<730	<830	<840	200000	<730	<585	<700	<680
3,3'-DICHLOROBENZIDINE, UG/KG	<1500	<1400	<1600	<1600	<60000	<1400	<945	<1400	<1300
4-METHYLPHENOL, UG/KG	<740	<730	<830	<840	<33000	<730	<585	32	<680
BENZO(A)PYRENE, UG/KG	<740	<730	<830	<840	<33000	<730	<585	<700	<680
BENZO(B)FLUORANTHENE, UG/KG	<740	<730	<830	<840	<33000	<730	<585	<700	<680
BIS(2-CHLOROETHYL)ETHER, UG/KG	<740	<730	<830	<840	<33000	<730	<585	<700	<680
BIS(2-ETHYLHEXYL)PHTHALATE, UG/KG			<830						
DIBENZ(A,H)ANTHRACENE, UG/KG	<740	<730	<830	<840	<33000	<730	<585	<700	<680
HEXACHLOROBENZENE, UG/KG	<740	<730	<830	<840	<33000	<730	<585	<700	<680
NAPHTHALENE, UG/KG	<740	<730	<830	<840	8600	<730	<585	<700	<680
NITROBENZENE, UG/KG	<740	<730	<830	<840	<33000	<730	<585	<700	<680
<b>III. PESTICIDES/PCBs</b>									
ALDRIN, UG/KG					<1100	<2	<1100		
AROCLO-1242, UG/KG					<1100	<39	<1100		

**TABLE C-6**  
**Soil Concentrations for Chemicals of Potential Concern at Pond 03**

CHEMICAL	Pond03-02 8'-9' 10'-11'	Pond03-02 10'-12'	Pond03-03 10'-12'	Pond03-G2 2'-4'	Pond03-G5 6'-8'	Pond03-G6 4'-7'	Pond03-G6 7'-8'	Pond03-G6 10'-11'
<b>IV. METALS</b>								
ANTIMONY, MG/KG	<5	<5	<5	<5	<5	<5	9	<5
ARSENIC, MG/KG	<10	<10	<10	<10	<10	<10	<5.32	<10
BARIUM, MG/KG	80	79	49	28	67	26	76	34
CADMIUM, MG/KG	<5	<5	<5	<5	<5	<5	20	32
COPPER, MG/KG	<20	<20	<20	<20	<20	<20	4	<20
IRON, MG/KG	6200	100000	7900	6500	5100	19000	5605	6800
LEAD, MG/KG	11	13	10	<10	<10	<10	550	<10
MANGANESE, MG/KG	>30	93	95	>30	>30	>30	57	<30
MERCURY, MG/KG	<10	<10	<10	<10	<10	<10	<5.06	<10
NICKEL, MG/KG	97	<60	<60	<60	<60	<60	1	<60
SELENIUM, MG/KG	<7	<7	<7	<7	<7	<7	<3.905	<7
THALLIUM, MG/KG	<20	<20	<20	<20	<20	<20	51	<20
VANADIUM, MG/KG	200	190	140	160	180	170	135	130

**TABLE C-6**  
**Soil Concentrations for Chemicals of Potential Concern at Pond 03**

CHEMICAL	Pond03-G6 8.5'-10'	Pond03-G7 4'-7'	Pond03-G8 6.5'-7.5'	Pond03- SS01 Surface	Pond03- SS02 Surface	Pond03- SS03 Surface	Max Concentration	Log 95% UCL	EPC
	Pond03-G6 8.5'-10'	Pond03-G7 4'-7'	Pond03-G8 6.5'-7.5'	Surface	Surface	Surface	Concentration	95% UCL	EPC
<b>I. VOLATILE ORGANIC COMPOUNDS</b>									
1,1,1-TRICHLOROETHANE, UG/KG	120	<24	400	<16	2	<21.3	1800	4160	1800
1,1-DICHLOROETHENE, UG/KG	<12	<24	<53	<16	<27	<21.3	40	19	19
4-METHYL-2-PENTANONE, UG/KG	420		2000	12	<27	<21.3	13000	72600	13000
ACETONE, UG/KG								N/A	N/A
BENZENE, UG/KG	6	<24	22	<16	<27	<21.3	170	65	65
CHLOROBENZENE, UG/KG	350		980	3	<27	<21.3	580000	15600000	580000
DIBROMOCHLOROMETHANE, UG/KG	<12	<24	<53	<16	<27	<21.3	ND	46	ND
ETHYLBENZENE, UG/KG	6	<24	16	5	6	3	180000	507000	180000
M,P-XYLENE, UG/KG	12		74	2	2	<53	620000	293000000	620000
METHYLENE CHLORIDE, UG/KG								N/A	ND
O-XYLENE, UG/KG	17		45	4	3	<26.5	620000	10800000	620000
TETRACHLOROETHENE, UG/KG	42		150	<16	<27	<21.3	650000	133000000	650000
TOLUENE, UG/KG	240		820		<27	<18.5	1000	N/A	1000
TRICHLOROETHENE, UG/KG	24	<24	74	<16	<27	<21.3	1800	1490	1490
VINYL CHLORIDE, UG/KG	<12	<24	<53	<16	<27	2	33	61	33
<b>II. SEMIVOLATILE ORGANIC COMPOUND:</b>									
1,2,4-TRICHLOROBENZENE, UG/KG	<660	<690	<760	<497	<700	<606.7	14000	1410	1410
1,3-DICHLOROBENZENE, UG/KG	<660	<690	<760	<497	<700	<606.7	ND	1560	ND
1,4-DICHLOROBENZENE, UG/KG	<660	<690	<760	<497	<700	<606.7	200000	11400	11400
3,3'-DICHLOROBENZIDINE, UG/KG	<1163	<1400	<1500	<497	<1400	<1053.3	ND	3130	ND
4-METHYLPHENOL, UG/KG	<660	<690	45	<497	<700	<606.7	45	2630	45
BENZO(A)PYRENE, UG/KG	<660	<690	<760	<497	<700	<606.7	ND	1560	ND
BENZO(B)FLUORANTHENE, UG/KG	<660	<690	<760	<497	<700	<606.7	ND	1560	ND
BIS(2-CHLOROETHYL)ETHER, UG/KG	<660	<690	<760	<497	<700	<606.7	ND	1560	ND
BIS(2-ETHYLHEXYL)PHTHALATE, UG/KG	<390				<370		<360	ND	N/A
DIBENZ(A,H)ANTHRACENE, UG/KG	<660		<760	<497	<700	<606.7	ND	1560	ND
HEXACHLOROBENZENE, UG/KG	<660	<690	<760	<497	<700	<606.7	ND	1560	ND
NAPHTHALENE, UG/KG	<660	<690	<760	<370	<360	8600	1220	1220	1220
NITROBENZENE, UG/KG	<660	<690	<760	<497	<700	<606.7	ND	1560	ND
<b>III. PESTICIDES/PCBs</b>									
ALDRIN, UG/KG	<2			<368	<1100	<734	ND	N/A	ND
AROCLOR-1242, UG/KG	<39		<391	<1100	<745.3	ND	N/A	ND	ND

TABLE C-6  
Soil Concentrations for Chemicals of Potential Concern at Pond 03

CHEMICAL	Pond03-G6 8.5'-10'	Pond03-G7 4'-7'	Pond03-G8 6.5'-7.5'	Pond03- SS01	Pond03- SS02	Pond03- SS03	Max Surface Concentration	Log 95% UCL	EPC
<b>IV. METALS</b>									
ANTIMONY, MG/KG	<3	<5	<5	<2	<5	<3.5	9	4	4
ARSENIC, MG/KG	<6.88	<10	<10	1	<10	1	1	7	1
BARIUM, MG/KG	48	60	36	55	77	62	80	68	68
CADMIUM, MG/KG	9	<5	<5	<1.74	<5	<3.37	32	16	16
COPPER, MG/KG	3	<20	<20	13	<20	2	13	13	13
IRON, MG/KG	5290	12000	6400	8675	15000	3950	19000	10400	10400
LEAD, MG/KG	1	<10	<10	8	16	1	550	132	132
MANGANESE, MG/KG	20	44	<30	24	31	26	95	57	57
MERCURY, MG/KG	<7	<10	<10	<3	<10	<6.7	ND	5	ND
NICKEL, MG/KG	7	<60	<60	<20.36	<60	<40.2	97	96	96
SELENIUM, MG/KG	<5	<7	<7	1	>7	<4.92	1	4	1
THALLIUM, MG/KG	<13.62	<20	<20	<7.21	<20	<13.6	51	18	18
VANADIUM, MG/KG	61	170	100	108	190	101	200	176	176

**TABLE C-7**  
**Soil Concentrations for Chemicals of Potential Concern at SP**

CHEMICAL	SP-01 2'-4'	SP-01 4'-6'	SP-02 2'-4'	SP-02 4'-6'	SP-03 2'-4'	SP-03 4'-6'	SP-04 0'-3'	SP-04 0'-3'	SP-05 0'-1'	SP-06 0'-1'	Max Concentration	Log 95% UCL	EPC
<b>I. VOLATILE ORGANIC COMPOUNDS</b>													
1,1,1-TRICHLOROETHANE, UG/KG	<4400	<29	<96	<63	<38	<27	470	<26	<25	470	N/A	470	
1,1-DICHLOROETHENE, UG/KG	<4400	<29	<96	<63	<38	<27	14	<26	<25	14	N/A	14	
4-METHYL-2-PENTANONE, UG/KG	4500	330	26	20	<38	<27	<28	<26	<25	4500	N/A	4500	
ACETONE, UG/KG											N/A	N/A	
BENZENE, UG/KG											N/A	45	
CHLOROBENZENE, UG/KG											N/A	14000	
DIBROMOCHLOROMETHANE, UG/KG											N/A	ND	
ETHYLBENZENE, UG/KG											N/A	ND	
M,P-XYLENE, UG/KG											N/A	820	
METHYLENE CHLORIDE, UG/KG											N/A	1500	
O-XYLENE, UG/KG											N/A	55	
TETRACHLOROETHENE, UG/KG											N/A	1300	
TOLUENE, UG/KG											N/A	1400	
TRICHLOROETHENE, UG/KG											N/A	6500	
VINYL CHLORIDE, UG/KG											N/A	1000	
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>													
1,2,4-TRICHLOROBENZENE, UG/KG	100	<730	52	12	36	36	49	250	15	250	N/A	250	
1,3-DICHLOROBENZENE, UG/KG	<760	<730	<660	<730	<1100	<730	<750	15	<680	15	N/A	15	
1,4-DICHLOROBENZENE, UG/KG	39	29	72	82	110	<730	120	42	<680	120	N/A	120	
3,3'-DICHLOROBENZIDINE, UG/KG	<1500	<1400	<1300	<1400	<2100	<1400	<1500	<1500	<1300	ND	N/A	ND	
4-METHYLPHENOL, UG/KG	150	<730	<660	<730	<1100	<730	17	<740	<680	150	N/A	150	
BENZO(A)PYRENE, UG/KG	<760	<730	<660	<730	<1100	<730	<750	<740	<680	ND	N/A	ND	
BENZO(B)FLUORANTHENE, UG/KG	<760	<730	<660	<730	<1100	<730	<750	<740	<680	ND	N/A	ND	
BIS(2-CHLOROETHYL)ETHER, UG/KG	<760	<730	<660	<730	<1100	<730	<750	<740	<680	ND	N/A	ND	
BIS(2-ETHYLHEXYL)PHTHALATE, UG/KG	730									1000		1000	
DIBENZ(A,H)ANTHRACENE, UG/KG	<760	<730	<660	<730	<1100	<730	<750	<740	<680	ND	N/A	ND	
HEXACHLOROBENZENE, UG/KG	<760	<730	<660	<730	<1100	<730	<750	<740	<680	ND	N/A	ND	
NAPHTHALENE, UG/KG	<760	<730	<660	<730	<1100	<730	<750	<740	<680	ND	N/A	ND	
<b>III. PESTICIDES/PCB</b>													
ALDRIN, UG/KG	<1100	<1100	<1000	<1100	<1600	<1100	<1100	<1000	<1000	ND	N/A	ND	
AROCLOR-1242, UG/KG	<1100	<1100	<1000	<1100	<1600	<1100	<1100	<1000	<1000	ND	N/A	ND	
<b>IV. METALS</b>													
ANTIMONY, MG/KG	<5	<5	<5	<5	<5	<5	<5	<5	<5	ND	N/A	ND	

**TABLE C-7**  
**Soil Concentrations for Chemicals of Potential Concern at SP**

CHEMICAL	SP-01 2'-4'	SP-01 4'-6'	SP-02 2'-4'	SP-02 4'-6'	SP-03 2'-4'	SP-03 4'-6'	SP-04 0'-3'	SP-04 0'-6'	SP-05 0'-1.5'	SP-06 0'-1'	Max Concentration	95% UCL	Log EPC
ARSENIC, MG/KG	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ND	N/A	ND
BARIUM, MG/KG	220	160	150	180	200	180	220	180	210	220	N/A	N/A	220
CADMIUM, MG/KG	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ND	N/A	ND
COPPER, MG/KG	<20	<20	<20	<20	<20	<20	<20	<20	22	<20	22	N/A	22
IRON, MG/KG	12000	15000	13000	15000	13000	15000	15000	14000	14000	14000	15000	N/A	15000
LEAD, MG/KG	<10	14	16	20	<10	19	<10	140	29	140	29	N/A	140
MANGANESE, MG/KG	68	60	58	110	79	<30	<30	<30	57	110	N/A	N/A	110
MERCURY, MG/KG	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ND	N/A	ND
NICKEL, MG/KG	<60	<60	<60	<60	<60	<60	<60	<60	<60	<60	ND	N/A	ND
SELENIUM, MG/KG	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	ND	N/A	ND
THALLIUM, MG/KG	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	ND	N/A	ND
VANADIUM, MG/KG	200	210	200	180	190	210	190	200	220	220	N/A	N/A	220

**TABLE C-8**  
**Soil Concentrations for Chemicals of Potential Concern at SSA**

CHEMICAL	SSA-03 6'-7'	SSA-05 10'-11'	SSA-07 8'-10'	Max Concentration	Log 95% UCL	EPC
<b>I. VOLATILE ORGANIC COMPOUNDS</b>						
1,1,1-TRICHLOROETHANE, UG/KG	13	<26	<31	13	N/A	13
1,1-DICHLOROETHENE, UG/KG	<26	<26	<31	ND	N/A	ND
4-METHYL-2-PENTANONE, UG/KG	830	<31	830	N/A	N/A	830
ACETONE, UG/KG				N/A	N/A	N/A
BENZENE, UG/KG	5	170	<31	170	N/A	170
CHLOROBENZENE, UG/KG	54	7600	<31	7600	N/A	7600
DIBROMOCHLOROMETHANE, UG/KG	<26	<26	<31	ND	N/A	ND
ETHYLBENZENE, UG/KG	<26	180	<31	180	N/A	180
M,P-XYLENE, UG/KG	10	<62	<62	10	N/A	10
METHYLENE CHLORIDE, UG/KG				N/A	N/A	N/A
O-XYLENE, UG/KG	6		<31	6	N/A	6
TETRACHLOROETHENE, UG/KG	<26		<31	ND	N/A	ND
TOLUENE, UG/KG	71			71	N/A	71
TRICHLOROETHENE, UG/KG	3		<31	3	N/A	3
VINYL CHLORIDE, UG/KG	<26	<26	<31	ND	N/A	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>						
1,2,4-TRICHLOROBENZENE, UG/KG	<680	50	<730	50	N/A	50
1,3-DICHLOROBENZENE, UG/KG	<680	<730	<730	ND	N/A	ND
1,4-DICHLOROBENZENE, UG/KG	<680	<730	<730	ND	N/A	ND
3,3'-DICHLOROBENZIDINE, UG/KG	<1300	<1400	<1400	ND	N/A	ND
4-METHYLPHENOL, UG/KG	<680	<730	<730	ND	N/A	ND
BENZO(A)PYRENE, UG/KG	<680	<730	<730	ND	N/A	ND
BENZO(B)FLUORANTHENE, UG/KG	<680	<730	<730	ND	N/A	ND
BIS(2-CHLOROETHYL)ETHER, UG/KG	<680	<730	<730	ND	N/A	ND
BIS(2-ETHYLHEXYL)PHTHALATE, UG/KG				ND	N/A	ND
DIBENZ(A,H)ANTHRACENE, UG/KG	<680	<730	<730	ND	N/A	ND
HEXACHLOROBENZENE, UG/KG	<680	<730	<730	ND	N/A	ND
NAPHTHALENE, UG/KG	<680	<730	<730	ND	N/A	ND
NITROBENZENE, UG/KG	<680	<730	<730	ND	N/A	ND
<b>III. PESTICIDES/PCBs</b>						
ALDRIN, UG/KG	<1000		ND	N/A	ND	ND
AROCLOR-1242, UG/KG	<1000		ND	N/A	ND	ND

**TABLE C-8**  
**Soil Concentrations for Chemicals of Potential Concern at SSA**

CHEMICAL	SSA-03 6'-7'	SSA-05 10'-11'	SSA-07 8'-10'	Max Concentration	Log 95% UCL	EPC
<b>IV. METALS</b>						
ANTIMONY, MG/KG	<5	<5	<5	ND	N/A	ND
ARSENIC, MG/KG	<10	<10	<10	ND	N/A	ND
BARIUM, MG/KG	100	22	170	170	N/A	170
CADMIUM, MG/KG	<5	<5	<5	ND	N/A	ND
COPPER, MG/KG	<20	<20	<20	ND	N/A	ND
IRON, MG/KG	13000	7700	6700	13000	N/A	13000
LEAD, MG/KG	11	<10	<10	11	N/A	11
MANGANESE, MG/KG	66	34	<30	66	N/A	66
MERCURY, MG/KG	<10	<10	<10	ND	N/A	ND
NICKEL, MG/KG	<60	<60	160	160	N/A	160
SELENIUM, MG/KG	<7	<7	<7	ND	N/A	ND
THALLIUM, MG/KG	<20	<20	<20	ND	N/A	ND
VANADIUM, MG/KG	200	70	200	200	N/A	200

**APPENDIX D**  
**ESTIMATION OF ON-SITE AIR CONCENTRATIONS**

## APPENDIX D

### **Estimation of On-Site Air Concentrations**

#### **A. Introduction**

Risks may be posed to on-site residents and on-site industrial workers by exposure to vapors emitted from on-site soils. To quantify the risks posed to these populations, it was first necessary to estimate the ambient air concentrations associated with each source area.

Estimation of the ambient air concentrations of the COPCs was a two-step process. The first step involved an estimation of passive emissions rates for each COPC from each source area of the site. This was done by employing one of two diffusion models recommended by USEPA. The first model, presented in Jury et al. (1990) (referred to herein as the Jury Model) is recommended by USEPA (1996b) and was applied to areas of the site at which contaminant chemicals are present only in the dissolved form, i.e., soil contamination concentrations are below the saturation concentration. The second diffusion model is recommended by USEPA (1996a). This model was applied to areas of the site at which soil contamination concentrations are above the saturation concentration, i.e., nonaqueous phase liquid (NAPL) is present. This second model is referred to herein as the NAPL Model. Both of these models are discussed in detail in the following sections.

In the second step, the calculated emissions rates were used to predict ambient air concentrations through the use of USEPA's Industrial Source Complex short-term atmospheric dispersion model (ISCST3). The results of these modeling efforts are described in the remainder of this appendix.

#### **B. Estimation of Passive Volatilization Rates**

The subsurface soil environment consists of three phases: a solid phase consisting of the soil matrix; a gaseous phase consisting of gas trapped within the soil matrix; and a liquid phase consisting of liquid (e.g., ground water) stored within the pore space created by the soil matrix. Under equilibrium conditions, volatile chemicals can exist in all three phases. The relative concentrations of any chemical among each of the three phases will be affected by numerous physical and chemical properties of the individual chemical (e.g., molecular weight, vapor pressure, and solubility).

The vapor pressure of a chemical is the measure of that chemical's ability to escape from either the liquid phase or the solid phase and enter into the gaseous phase. Chemicals with higher vapor pressures are more likely to be present in the gaseous phase. The rate at which a chemical enters the gaseous phase is directly proportional to the concentration gradient across either the solid-gaseous phase interface or the liquid-gaseous phase interface. Chemicals will

move across the interface between phases in a direction so as to eliminate the concentration gradient.

The concentration gradient that is established across the subsurface-atmosphere interface causes chemicals to move from the subsurface to the atmosphere, thereby creating a mass flux of contaminants across the subsurface-atmosphere interface (i.e., the ground surface). For a soil column with an initially uniform vertical soil concentration, assuming no vertical water movement, this mass flux of chemicals out of the subsurface will deplete the top layers of the soil column of any contaminants. As time passes, the uncontaminated layer extends deeper into the subsurface (i.e., it gets thicker) and the concentration gradient across the subsurface-atmosphere interface (and therefore the mass flux) decreases.

### 1. Soil Saturation Concentration

In order to determine the applicable diffusion model to be applied at each area of the site, the soil saturation concentration for each COPC was calculated and compared with the contaminant soil concentration established in this risk assessment (Appendix C). The soil saturation concentration is the concentration at which the solubility of the contaminant in water, the adsorptive capacity of the soil matrix, and the saturation limits of the interstitial vapors have all been reached. In cases where the contaminant concentration is at or exceeds the saturation concentration, the Jury Model may introduce error into the estimation of the contaminant flux because it does not account for saturation, thereby overestimating potential emissions. In these cases, the NAPL Model was used. The soil saturation concentration can be calculated with the following equation (USEPA 1996b):

$$C_{\text{sat}} = \frac{S(K_d \rho_b + \theta_w + H' \theta_a)}{\left(1,000 \frac{\text{mg}}{\text{g}}\right) \left(1,000 \frac{\text{cm}^3}{\text{L}}\right)} \quad (\text{D-1})$$

where,

- |                  |   |  |
|------------------|---|--|
| $C_{\text{sat}}$ | = | the saturation concentration, $\text{g}/\text{cm}^3$ ,           |
| $S$              | = | the contaminant solubility in water, $\text{mg}/\text{L}$ ,      |
| $\theta_a$       | = | air-filled soil porosity, $L_{\text{air}}/L_{\text{soil}}$ ,     |
| $\theta_w$       | = | water-filled soil porosity, $L_{\text{water}}/L_{\text{soil}}$ , |
| $\rho_b$         | = | soil dry bulk density, $\text{g}/\text{cm}^3$ (1.5),             |
| $H'$             | = | dimensionless Henry's law constant, unitless, and                |
| $K_d$            | = | soil-water partition coefficient, $\text{cm}^3/\text{g}$ .       |

Chemical specific parameters were taken from USEPA (1996b) guidance. In cases where information was not available for a particular chemical, other sources (e.g., CHEMDAT8, Montgomery [1996]) were consulted. Site-specific parameters were taken from the BRA. Chemical-specific and site-specific parameters used in the long-term passive emissions modeling are presented in Tables D-1 and D-2, respectively.

## 2. Jury Model

Several authors (e.g., Bomberger et al., 1982; Farmer and Letey, 1974; and Hwang and Falco, 1986) have presented solutions to second-order differential equations that model the movement of contaminant vapor through the subsurface soil matrix. Although based on similar starting equations, the resulting solutions have differed as a result of varying initial and boundary conditions, and varying assumptions made by each author.

In the Soil Screening Guidance (USEPA 1996b), USEPA recommends using the diffusion model presented by Jury et al. (1990) as a means of estimating emission rates of various contaminants to the atmosphere. This model is based on earlier work published by Jury et al. (1983) and employs the following assumptions:

- Uniform soil properties (e.g., homogeneous average soil water content, bulk density, porosity, and fraction organic content);
- Instantaneous linear equilibrium adsorption;
- Linear equilibrium liquid-vapor partitioning (i.e., Henry's Law applies);
- Initial uniform vertical contaminant concentration;
- Chemicals in a dissolved form only (i.e., soil contamination concentrations are below the saturation concentration);
- No boundary layer thickness at ground level (i.e., an infinite concentration gradient exists at the subsurface-atmosphere interface);
- No water evaporation or leaching;
- No chemical, physical, or biological degradation;

Under these conditions, the Jury et al. (1990) simplified finite source model becomes:

$$J_s = C_o (D_E / \pi t)^{1/2} \left[ 1 - \exp(-L^2 / 4D_E t) \right] \left( 10,000 \frac{\text{cm}^2}{\text{m}^2} \right) \quad (\text{D-2})$$

**TABLE D-1**  
**Chemical-specific Parameter Values**

Chemical	Solubility (mg/L)	H' (unitless)	D <sub>air</sub> (cm <sup>2</sup> /sec)	D <sub>water</sub> (cm <sup>2</sup> /sec)	MW (g/mol)	P (mm Hg)	K <sub>d</sub> (cm <sup>3</sup> /g)	K <sub>oc</sub> (cm <sup>3</sup> /g)
<b>Volatile Organic Chemicals</b>								
1,1,1-Trichloroethane	1.3E+03	7.1E-01	7.8E-02	8.8E-06	133.41	123	1.1E+00	1.1E+02
1,1-Dichloroethene	2.3E+03	1.1E+00	9.0E-02	1.0E-05	96.94	600	5.9E-01	5.9E+01
4-Methyl-2-pentanone	1.9E+01	1.6E-02	8.6E-02	7.7E-06	100.16	19.31	6.2E-02	6.2E+00
Acetone	1.0E+06	1.6E-03	1.2E-01	1.1E-05	58.08	266	5.8E-03	5.8E-01
Benzene	1.8E+03	2.3E-01	8.8E-02	9.8E-06	78.12	95.2	5.9E-01	5.9E+01
Chlorobenzene	4.7E+02	1.5E-01	7.3E-02	8.7E-06	112.56	11.8	2.2E+00	2.2E+02
Dibromochloromethane	2.5E+03	3.2E-01	2.0E-02	9.7E-06	208.28	76	8.3E-01	8.3E+01
Ethylbenzene	1.7E+02	3.2E-01	7.5E-02	7.8E-06	106.16	10	3.6E+00	3.6E+02
M,P-Xylene	1.7E+02	3.1E-01	7.4E-02	8.1E-06	106.2	8.75	4.0E+00	4.0E+02
Methylene chloride	1.3E+04	9.0E-02	1.0E-01	1.2E-05	84.93	440	1.2E-01	1.2E+01
O-Xylene	1.8E+02	2.1E-01	8.7E-02	1.0E-05	106.2	7	3.6E+00	3.6E+02
Tetrachloroethene	2.0E+02	7.5E-01	7.2E-02	8.2E-06	165.83	19	1.6E+00	1.6E+02
Toluene	5.3E+02	2.7E-01	8.7E-02	8.6E-06	92.14	30	1.8E+00	1.8E+02
Trichloroethene	1.1E+03	4.2E-01	7.9E-02	9.1E-06	131.4	75	1.7E+00	1.7E+02
Vinyl chloride	2.8E+03	1.1E+00	1.1E-01	1.2E-06	62.5	2660	1.9E-01	1.9E+01
<b>Semivolatile Organic Chemicals</b>								
1,2,4-Trichlorobenzene	3.00E+02	5.82E-02	3.00E-02	8.23E-06	181.45	0.4	1.78E+01	1.78E+03
1,3-Dichlorobenzene	1.43E+02	1.48E-01	4.14E-02	8.20E-06	147	1.9	1.70E+00	1.70E+02
1,4-Dichlorobenzene	7.38E+01	9.96E-02	6.90E-02	7.90E-06	147	1.2	6.17E+00	6.17E+02
3,3'-Dichlorobenzidine	3.11E+00	1.64E-07	1.94E-02	6.74E-06	253.13	1.00E-05	7.24E+00	7.24E+02
4-Methylphenol	2.40E+04	3.25E-05	7.40E-02	7.70E-06	108.14	4.00E-02	5.00E-01	5.01E+01
Benzo(a)pyrene	1.62E-03	4.63E-05	4.30E-02	9.00E-06	252.32	5.49E-09	1.02E+04	1.02E+06
Benzo(b)fluoranthene	1.50E-03	4.55E-03	2.26E-02	5.56E-06	252.32	5.00E-07	1.23E+04	1.23E+06
Bis(2-chloroethyl)ether	1.72E+04	7.38E-04	6.92E-02	7.53E-06	143.01	0.71	1.55E-01	1.55E+01
Bis(2-ethylhexyl)phthalate	3.40E-01	4.18E-06	3.51E-02	3.66E-06	390.57	2.00E-07	1.51E+05	1.51E+07
Dibenz(a,h)anthracene	2.49E-03	6.03E-07	2.02E-02	5.18E-06	278.36	2.78E-12	3.80E+04	3.80E+06
Hexachlorobenzene	6.20E+00	5.41E-02	5.42E-02	5.91E-06	284.78	1.80E-05	5.50E+02	5.50E+04

**TABLE D-1**  
**Chemical-specific Parameter Values**

Chemical	Solubility (mg/L)	H' (unitless)	D <sub>air</sub> (cm <sup>2</sup> /sec)	D <sub>water</sub> (cm <sup>2</sup> /sec)	MW (g/mol)	P (mm Hg)	K <sub>d</sub> (cm <sup>3</sup> /g)	K <sub>oc</sub> (cm <sup>3</sup> /g)
Naphthalene	3.10E+01	1.98E-02	5.90E-02	7.50E-06	128.19	0.023	2.00E+01	2.00E+03
Nitrobenzene	2.09E+03	9.84E-04	7.60E-02	8.60E-06	123.11	0.15	6.46E-01	6.46E+01
<b>Pesticides/PCBs</b>								
Aldrin	1.80E-01	6.97E-03	1.32E-02	4.86E-06	364.92	7.50E-05	2.45E+04	2.45E+06
Aroclor-1242	2.40E-01	2.30E-02	4.00E-02	6.10E-06	358	4.00E-04	1.00E+02	1.00E+04
<b>Metals</b>								
Antimony					121.75			
Arsenic					74.92			
Barium					137.33			
Cadmium					112.41			
Copper					63.55			
Iron					55.85			
Lead					207.2			
Manganese					54.94			
Mercury					54.94			
Nickel					58.7			
Selenium					78.96			
Thallium					204.37			
Vanadium					50.94			
H'	= dimensionless Henry's constant							
D <sub>air</sub>	= diffusivity in air							
D <sub>water</sub>	= diffusivity in water							
MW	= molecular weight							
P	= vapor pressure							
K <sub>d</sub>	= soil-water partition coefficient = (f <sub>so</sub> )(K <sub>oc</sub> )							
K <sub>oc</sub>	= octanol-water partition coefficient							

TABLE D-2  
Area-specific Parameter Values

Area	$\theta_a$ (unitless)	$n$ (unitless)	$\theta_w$ (unitless)	$\rho_b$ (g/cm <sup>3</sup> )	$\rho_s$ (g/cm <sup>3</sup> )	w (%)	$f_{oc}$ (unitless)
ASP1	0.44	0.5	0.06	1.5	2.65	4.2	0.01
BWA	0.27	0.5	0.23	1.5	2.65	15.1	0.01
NDA	0.32	0.5	0.18	1.5	2.65	12	0.01
Pond 01	0.32	0.5	0.18	1.5	2.65	11.9	0.01
Pond 02	0.32	0.5	0.18	1.5	2.65	11.8	0.01
Pond 03	0.31	0.5	0.20	1.5	2.65	13	0.01
SP	0.32	0.5	0.18	1.5	2.65	11.8	0.01
SSA	0.33	0.5	0.17	1.5	2.65	11.3	0.01

 $\theta_a$  = air-filled porosity $n$  = total porosity $\theta_w$  = water-filled porosity $\rho_b$  = bulk density of soil $\rho_s$  = soil density

w = moisture content

 $f_{oc}$  = fraction of organic content

where,

$J_s$	=	contaminant flux at the ground surface, $\text{g}/\text{m}^2\text{-s}$ ;
$C_0$	=	uniform contaminant concentration at time equals zero, $\text{g}/\text{cm}^3$ ;
$D_E$	=	effective diffusivity, $\text{cm}^2/\text{s}$ ;
$t$	=	exposure averaging period, sec; and
$L$	=	depth of uniform soil contamination at time equals zero, cm;

and

$$D_E = \frac{(\theta_a^{10/3} D_a H' + \theta_w^{10/3} D_w) / n^2}{(\rho_b K_d + \theta_w + \theta_a H')} \quad (\text{D-3})$$

where,

$\theta_a$	=	air-filled soil porosity, $L_{\text{air}}/L_{\text{soil}}$ ;
$n$	=	total soil porosity, $L_{\text{pore}}/L_{\text{soil}}$ ;
$\theta_w$	=	water-filled soil porosity, $L_{\text{water}}/L_{\text{soil}}$ ;
$\rho_b$	=	soil dry bulk density, $\text{g}/\text{cm}^3$ (1.5);
$D_a$	=	diffusivity in air, $\text{cm}^2/\text{s}$ ;
$H'$	=	dimensionless Henry's law constant, unitless;
$D_w$	=	diffusivity in water, $\text{cm}^2/\text{s}$ ; and
$K_d$	=	soil-water partition coefficient, $\text{cm}^3/\text{g}$ .

It is important to note that the simplified finite source model estimates an instantaneous flux. In order to estimate contaminant flux over a specified time period, the above equations must be solved at various times, and the results averaged. The time-step interval selected must be small enough (e.g., one day) to avoid mass balance violations (e.g., more contaminant volatilizes from the ground than is initially in the ground).

### 3. NAPL Model

When the soil contamination concentration exceeds the saturation concentration determined by Equation D-1, the Jury Model may introduce error into the estimation of the contaminant flux because it does not account for saturation, thereby overestimating potential emissions. In cases where NAPL is present in surface soils, USEPA (1996a) recommends the "Volatile Emissions from Surface Soils when NAPL is Present" methodology presented in that document. This model employs the following assumptions:

- No clean soil is present above the contamination; and
- The contamination source is infinite, thereby allowing a steady-state assumption.

The NAPL Model is represented by the following equation:

$$J_s = C_o \left( \frac{2C_{v,eq}D_E}{C_o t} \right)^{1/2} 0.116 \quad (D-4)$$

where,

$J_s$	=	contaminant flux at the ground surface, $\text{g}/\text{m}^2\text{-s}$ ;
$C_o$	=	uniform contamination concentration at time equals zero, $\text{g}/\text{cm}^3$ ;
$C_{v,eq}$	=	Equilibrium vapor concentration present in the soil, $\text{g}/\text{cm}^3$ ;
$D_E$	=	Effective diffusivity when NAPL is present, $\text{cm}^2/\text{s}$ ;
$t$	=	exposure averaging period, days; and
0.116	=	Factor to convert $\text{g}/\text{cm}^2\text{-d}$ to $\text{g}/\text{m}^2\text{-s}$ ;

and

$$C_{v,eq} = \frac{X_i P_i M W_i}{R T} \quad (D-5)$$

where,

$X_i$	=	Mole fraction of contaminant $i$ , $\text{g}/\text{mol}$ per $\text{g}/\text{mol}$ ;
$P_i$	=	Pure component vapor pressure of contaminant $i$ , $\text{mm Hg}$ ;
$M W_i$	=	Molecular weight of contaminant $i$ , $\text{g}/\text{mol}$ ;
$R$	=	Molar gas constant, $\text{mm Hg}\cdot\text{cm}^3/\text{mol}\cdot\text{K}$ (62,361); and
$T$	=	Average in situ soil temperature, $\text{K}$ (298);

and

$$D_E = \frac{\left(\theta_a^{10/3} D_a H' + \theta_w^{10/3} D_w\right)}{n^2} \quad (D-6)$$

where,

$\theta_a$	=	air-filled soil porosity, $L_{air}/L_{soil}$ ;
$n$	=	total soil porosity, $L_{pore}/L_{soil}$ ;
$\theta_w$	=	water-filled soil porosity, $L_{water}/L_{soil}$ ;
$D_a$	=	diffusivity in air, $cm^2/s$ ;
$H'$	=	dimensionless Henry's law constant, unitless; and
$D_w$	=	diffusivity in water, $cm^2/s$ .

Unlike the Jury Model, the NAPL Model does not result in an instantaneous flux, rather it predicts an average flux over the averaging period.

#### 4. Results

The results of the long-term emission volatilization rate calculations are presented in Tables D-3 through D-6. Estimated emissions rates are specific to source area and receptor (i.e., on-site industrial worker, on-site resident) due to varying exposure durations; therefore, these tables are grouped first by receptor and then by source area. In addition, central tendency exposure (CTE) and the reasonable maximum exposure (RME) estimates are presented for each receptor.

The emission rates presented in Tables D-3 through D-6 represent emission rates from a one square-meter area. Total emission rates (in grams per second) for each source area present at the MSGS site may be obtained by multiplying the estimated emission rate by the areal extent of each area.

#### C. Dispersion Modeling of On-Site Air Concentrations

The second step in estimating air concentrations (atmospheric dispersion modeling) was conducted using the Industrial Source Complex model in the short-term mode (ISCST3), which is recommended by USEPA for simulation of atmospheric dispersion. ISCST3 is an advanced steady-state Gaussian plume model that calculates chemical concentrations at specific downwind locations (referred to as receptors) as a function of wind speed, atmospheric stability, temperature gradient, mixing height, and downwind distance. The ISCST3 is capable of predicting both short-term and long-term concentrations and is more precise than the ISC long-term model due to the detailed meteorological data used by the model.

**TABLE D-3**  
**Summary of Estimate Emission Rates by Area**  
**CTE On-site Industrial Worker**

Chemical	ASPI	BWA	Estimated Emission Rate, J (g/sec-m <sup>2</sup> )					SP	SSA
			NDA	Pond 01	Pond 02	Pond 03			
<b>Volatile Organic Chemicals</b>									
1,1,1-Trichloroethane	0.000E+00	1.23E-05	1.90E-04	3.13E-08	1.82E-06	2.82E-08	7.15E-09	2.20E-10	
1,1-Dichloroethene	0.000E+00	2.09E-06	6.79E-07	8.24E-09	4.56E-07	8.52E-10	6.23E-10	0.00E+00	
4-Methyl-2-Pentanone	0.000E+00	6.67E-08	0.00E+00	7.26E-09	3.09E-08	1.28E-08	4.29E-09	8.81E-10	
Acetone	0.000E+00	0.00E+00	1.14E-06	0.00E+00	3.10E-07	0.00E+00	0.00E+00	0.00E+00	
Benzene	0.000E+00	2.02E-07	3.57E-06	1.58E-09	2.42E-07	5.41E-10	3.64E-10	1.53E-09	
Chlorobenzene	0.000E+00	1.04E-06	1.10E-04	1.05E-08	7.05E-07	1.26E-06	2.96E-08	1.79E-08	
Dibromochloromethane	0.000E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Ethylbenzene	0.000E+00	1.12E-07	5.14E-06	4.15E-10	2.46E-07	5.33E-07	2.36E-09	5.77E-10	
m,p-Xylene	0.000E+00	4.21E-07	1.95E-05	5.36E-12	1.29E-06	1.66E-06	3.91E-09	2.90E-11	
Methylene Chloride	0.000E+00	0.00E+00	0.00E+00	3.37E-09	5.49E-06	0.00E+00	6.43E-10	0.00E+00	
o-Xylene	0.000E+00	1.47E-07	6.47E-06	6.51E-10	5.40E-07	1.34E-06	2.74E-09	1.41E-11	
Tetrachloroethene	0.000E+00	1.53E-06	1.25E-04	0.00E+00	3.20E-06	3.97E-06	8.32E-09	0.00E+00	
Toluene	0.000E+00	3.01E-06	2.17E-04	4.47E-08	8.42E-07	5.07E-09	3.20E-08	3.90E-10	
Trichloroethene	0.000E+00	1.36E-06	2.48E-05	3.14E-10	7.51E-07	1.42E-08	9.25E-09	3.09E-11	
Vinyl Chloride	0.000E+00	0.00E+00	0.00E+00	1.70E-08	8.57E-08	3.52E-09	4.45E-08	0.00E+00	
<b>Semi-volatile Organic Compounds</b>									
1,2,4-Trichlorobenzene	0.000E+00	3.41E-08	7.12E-10	2.55E-12	7.93E-11	2.24E-10	3.87E-11	8.61E-12	
1,3-Dichlorobenzene	0.000E+00	8.82E-09	1.21E-07	2.21E-11	0.00E+00	0.00E+00	9.47E-12	0.00E+00	
1,4-Dichlorobenzene	0.000E+00	2.54E-08	6.11E-08	0.00E+00	2.95E-08	6.23E-09	6.38E-11	0.00E+00	
3,3'-Dichlorobenzidine	0.000E+00	3.10E-16	8.49E-15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
4-Methylphenol	0.000E+00	9.00E-13	0.00E+00	1.06E-13	3.71E-11	1.10E-13	3.26E-13	0.00E+00	
Benzo(a)Pyrene	0.000E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Benzo(b)Fluoranthene	0.000E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Bis(2-Chloroethyl)Ether	0.000E+00	0.00E+00	4.64E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Bis(2-Ethylhexyl)Phthalate	0.000E+00	2.62E-14	0.00E+00	8.11E-15	3.57E-13	0.00E+00	2.09E-15	0.00E+00	
Dibenzo(a,h)Anthracene	0.000E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Hexachlorobenzene	0.000E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Naphthalene	1.80E-12	1.65E-10	8.73E-11	0.00E+00	3.11E-10	3.81E-11	0.00E+00	0.00E+00	
Nitrobenzene	0.000E+00	1.52E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	

Chemical	ASPI	BWA	NDA	Estimated Emission Rate, J (g/sec-m <sup>2</sup> )				SSA
				Pond 01	Pond 02	Pond 03	SP	
<b>Pesticides/ PCBs</b>								
Aldrin	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Aroclor-1242	0.00E+00	2.14E-13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>Metals</b>								
Antimony	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Arsenic	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Barium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cadmium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Copper	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Iron	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Lead	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Manganese	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Mercury	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nickel	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Selenium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Thallium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Vanadium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

**TABLE D-4**  
**Summary of Estimate Emission Rates by Area**  
**RME On-site Industrial Worker**

Chemical	ASP1	BWA	NDA	Estimated Emission Rate, J (g/sec-m <sup>2</sup> )					SSA
				Pond 01	Pond 02	Pond 03	SP		
<b>Volatile Organic Chemicals</b>									
1,1,1-Trichloroethane	0.00E+00	5.50E-06	8.48E-05	1.40E-08	8.14E-07	1.26E-08	3.20E-09	9.85E-11	
1,1-Dichloroethene	0.00E+00	9.36E-07	3.04E-07	3.69E-09	2.04E-07	3.81E-10	2.78E-10	0.00E+00	
4-Methyl-2-Pentanone	0.00E+00	2.98E-08	0.00E+00	3.25E-09	1.38E-08	5.71E-09	1.92E-09	3.94E-10	
Acetone	0.00E+00	0.00E+00	5.08E-07	0.00E+00	1.39E-07	0.00E+00	0.00E+00	0.00E+00	
Benzene	0.00E+00	9.04E-08	1.60E-06	7.07E-10	1.08E-07	2.42E-10	1.63E-10	6.84E-10	
Chlorobenzene	0.00E+00	4.66E-07	4.90E-05	4.68E-09	3.15E-07	5.65E-07	1.33E-08	8.01E-09	
Dibromochloromethane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Ethylbenzene	0.00E+00	5.02E-08	2.30E-06	1.86E-10	1.10E-07	2.39E-07	1.06E-09	2.58E-10	
m,p-Xylene	0.00E+00	1.88E-07	8.71E-07	2.40E-12	5.77E-07	7.43E-07	1.75E-09	1.30E-11	
Methylene Chloride	0.00E+00	0.00E+00	0.00E+00	1.51E-09	2.46E-06	0.00E+00	2.88E-10	0.00E+00	
o-Xylene	0.00E+00	6.58E-08	2.89E-06	2.91E-10	2.41E-07	6.01E-07	1.23E-09	6.30E-12	
Tetrachloroethene	0.00E+00	6.84E-07	5.61E-05	0.00E+00	1.43E-06	1.78E-06	3.72E-09	0.00E+00	
Toluene	0.00E+00	1.35E-06	9.72E-05	2.00E-08	3.77E-07	2.27E-09	1.43E-08	1.74E-10	
Trichloroethene	0.00E+00	6.08E-07	1.11E-05	1.41E-10	3.36E-07	6.34E-09	4.14E-09	1.38E-11	
Vinyl Chloride	0.00E+00	0.00E+00	0.00E+00	7.62E-09	3.83E-08	1.57E-09	1.99E-08	0.00E+00	
<b>Semivolatile Organic Compounds</b>									
1,2,4-Trichlorobenzene	0.00E+00	1.53E-08	3.18E-10	1.14E-12	3.54E-11	1.00E-10	1.73E-11	3.85E-12	
1,3-Dichlorobenzene	0.00E+00	3.94E-09	5.41E-08	9.88E-12	0.00E+00	0.00E+00	4.24E-12	0.00E+00	
1,4-Dichlorobenzene	0.00E+00	1.14E-08	2.73E-08	0.00E+00	1.32E-08	2.79E-09	2.85E-11	0.00E+00	
3,3'-Dichlorobenzidine	0.00E+00	1.38E-16	3.80E-15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
4-Methylphenol	0.00E+00	4.03E-13	0.00E+00	4.73E-14	1.66E-11	4.93E-14	1.46E-13	0.00E+00	
Benzo(a)Pyrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Benzo(b)Fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Bis(2-Chloroethyl)Ether	0.00E+00	0.00E+00	2.08E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Bis(2-Ethylhexyl)Phthalate	0.00E+00	1.17E-14	0.00E+00	3.63E-15	1.60E-13	0.00E+00	9.36E-16	0.00E+00	
Dibenz(a,h)Anthracene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Hexachlorobenzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Naphthalene	8.05E-13	7.39E-11	3.90E-11	0.00E+00	1.39E-10	1.71E-11	0.00E+00	0.00E+00	
Nitrobenzene	0.00E+00	6.78E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	

Chemical	Estimated Emission Rate, J (g/sec-m <sup>2</sup> )						SSA
	ASP1	BWA	NDA	Pond 01	Pond 02	Pond 03	
<b>Pesticides/ PCBs</b>							
Aldrin	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Aroclor-1242	0.00E+00	9.59E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>Metals</b>							
Antimony	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Arsenic	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Barium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cadmium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Copper	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Iron	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Lead	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Manganese	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Mercury	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nickel	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Selenium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Thallium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Vanadium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

**TABLE D-5**  
**Summary of Estimate Emission Rates by Area**  
**CTE On-site Resident**

Chemical	ASP1	BWA	NDA	Estimated Emission Rate, J (g/sec-m <sup>2</sup> )					SSA
				Pond 01	Pond 02	Pond 03	SP		
<b>Volatile Organic Chemicals</b>									
1,1,1-Trichloroethane	0.00E+00	9.17E-06	1.41E-04	2.34E-08	1.36E-06	2.10E-08	5.33E-09	1.64E-10	
1,1-Dichloroethene	0.00E+00	1.56E-06	5.06E-07	6.14E-09	3.40E-07	6.35E-10	4.64E-10	0.00E+00	
4-Methyl-2-Pentanone	0.00E+00	4.97E-08	0.00E+00	5.41E-09	2.31E-08	9.51E-09	3.20E-09	6.57E-10	
Acetone	0.00E+00	0.00E+00	8.46E-07	0.00E+00	2.31E-07	0.00E+00	0.00E+00	0.00E+00	
Benzene	0.00E+00	1.51E-07	2.66E-06	1.18E-09	1.80E-07	4.04E-10	2.71E-10	1.14E-09	
Chlorobenzene	0.00E+00	7.77E-07	8.17E-05	7.80E-09	5.26E-07	9.42E-07	2.21E-08	1.34E-08	
Dibromochloromethane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Ethylbenzene	0.00E+00	8.36E-08	3.83E-06	3.09E-10	1.83E-07	3.98E-07	1.76E-07	4.30E-10	
m,p-Xylene	0.00E+00	3.14E-07	1.45E-05	4.00E-12	9.61E-07	1.24E-06	2.91E-09	2.16E-11	
Methylene Chloride	0.00E+00	0.00E+00	0.00E+00	2.51E-09	4.09E-06	0.00E+00	4.79E-10	0.00E+00	
o-Xylene	0.00E+00	1.10E-07	4.82E-06	4.85E-10	4.02E-07	1.00E-06	2.04E-09	1.05E-11	
Tetrachloroethene	0.00E+00	1.14E-06	9.34E-05	0.00E+00	2.38E-06	2.96E-06	6.20E-09	0.00E+00	
Toluene	0.00E+00	2.24E-06	1.62E-04	3.33E-08	6.28E-07	3.78E-09	2.39E-08	2.90E-10	
Trichloroethene	0.00E+00	1.01E-06	1.85E-05	2.34E-10	5.59E-07	1.06E-08	6.90E-09	2.30E-11	
Vinyl Chloride	0.00E+00	0.00E+00	0.00E+00	1.27E-08	6.39E-08	2.62E-09	3.32E-08	0.00E+00	
<b>Semivolatile Organic Compounds</b>									
1,2,4-Trichlorobenzene	0.00E+00	2.55E-08	5.31E-10	1.90E-12	5.91E-11	1.67E-10	2.88E-11	6.42E-12	
1,3-Dichlorobenzene	0.00E+00	6.57E-09	9.02E-08	1.65E-11	0.00E+00	0.00E+00	7.06E-12	0.00E+00	
1,4-Dichlorobenzene	0.00E+00	1.89E-08	4.56E-08	0.00E+00	2.20E-08	4.65E-09	4.75E-11	0.00E+00	
3,3'-Dichlorobenzidine	0.00E+00	2.31E-16	6.33E-15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
4-Methylphenol	0.00E+00	6.71E-13	0.00E+00	7.88E-14	2.76E-11	8.22E-14	2.43E-13	0.00E+00	
Benzo(a)Pyrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Benzo(b)Fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Bis(2-Chloroethyl)Ether	0.00E+00	0.00E+00	3.46E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Bis(2-Ethylhexyl)Phthalate	0.00E+00	1.95E-14	0.00E+00	6.04E-15	2.66E-13	0.00E+00	1.56E-15	0.00E+00	
Dibenz(a,h)Anthracene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Hexachlorobenzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Naphthalene	1.34E-12	1.23E-10	6.51E-11	0.00E+00	2.32E-10	2.84E-11	0.00E+00	0.00E+00	
Nitrobenzene	0.00E+00	0.00E+00	1.13E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	

**TABLE D-5**  
**Summary of Estimate Emission Rates by Area**  
**CTE On-site Resident**

Chemical	ASP1	BWA	Estimated Emission Rate, J (g/sec-m <sup>2</sup> )					SP	SSA
			NDA	Pond 01	Pond 02	Pond 03			
<b>Pesticides/ PCBs</b>									
Aldrin	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Aroclor-1242	0.00E+00	1.60E-13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>Metals</b>									
Antimony	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Arsenic	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Barium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cadmium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Copper	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Iron	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Lead	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Manganese	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Mercury	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nickel	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Selenium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Thallium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Vanadium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

**TABLE D-6**  
**Summary of Estimate Emission Rates by Area**  
**RME On-site Resident**

Chemical	ASPI	BWA	Estimated Emission Rate, J (g/sec-m <sup>2</sup> )					SP	SSA
			NDA	Pond 01	Pond 02	Pond 03			
<b>Volatile Organic Chemicals</b>									
1,1,1-Trichloroethane	0.00E+00	5.02E-06	7.74E-05	1.28E-08	7.43E-07	1.15E-08	2.92E-09	8.99E-11	
1,1-Dichloroethene	0.00E+00	8.54E-07	2.77E-07	3.36E-09	1.86E-07	3.48E-10	2.54E-10	0.00E+00	
4-Methyl-2-Pentanone	0.00E+00	2.72E-08	0.00E+00	2.97E-09	1.26E-08	5.21E-09	1.75E-09	3.60E-10	
Acetone	0.00E+00	0.00E+00	4.64E-07	0.00E+00	1.27E-07	0.00E+00	0.00E+00	0.00E+00	
Benzene	0.00E+00	8.25E-08	1.46E-06	6.46E-10	9.87E-08	2.21E-10	1.49E-10	6.25E-10	
Chlorobenzene	0.00E+00	4.26E-07	4.48E-05	4.27E-09	2.88E-07	5.16E-07	1.21E-08	7.31E-09	
Dibromochloromethane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Ethylbenzene	0.00E+00	4.58E-08	2.10E-06	1.69E-10	1.00E-07	2.18E-07	9.64E-10	2.36E-10	
m,p-Xylene	0.00E+00	1.72E-07	7.95E-06	2.19E-12	5.27E-07	6.78E-07	1.59E-09	1.18E-11	
Methylene Chloride	0.00E+00	0.00E+00	0.00E+00	1.38E-09	2.24E-06	0.00E+00	2.62E-10	0.00E+00	
o-Xylene	0.00E+00	6.01E-08	2.64E-06	2.66E-10	2.20E-07	5.49E-07	1.12E-09	5.75E-12	
Tetrachloroethene	0.00E+00	6.24E-07	5.12E-05	0.00E+00	1.31E-06	1.62E-06	3.40E-09	0.00E+00	
Toluene	0.00E+00	1.23E-06	8.88E-05	1.82E-08	3.44E-07	2.07E-09	1.31E-08	1.59E-10	
Trichloroethene	0.00E+00	5.55E-07	1.01E-05	1.28E-10	3.06E-07	5.79E-09	3.78E-09	1.26E-11	
Vinyl Chloride	0.00E+00	0.00E+00	0.00E+00	6.96E-09	3.50E-08	1.44E-09	1.82E-08	0.00E+00	
<b>Semi-volatile Organic Compounds</b>									
1,2,4-Trichlorobenzene	0.00E+00	1.39E-08	2.91E-10	1.04E-12	3.24E-11	9.16E-11	1.58E-11	3.51E-12	
1,3-Dichlorobenzene	0.00E+00	3.60E-09	4.94E-08	9.02E-12	0.00E+00	0.00E+00	3.87E-12	0.00E+00	
1,4-Dichlorobenzene	0.00E+00	1.04E-08	2.50E-08	0.00E+00	1.20E-08	2.55E-09	2.60E-11	0.00E+00	
3,3'-Dichlorobenzidine	0.00E+00	1.26E-16	3.46E-15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
4-Methylphenol	0.00E+00	3.67E-13	0.00E+00	4.32E-14	1.51E-11	4.50E-14	1.33E-13	0.00E+00	
Benzo(a)Pyrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Benzo(b)Fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Bis(2-Chloroethyl)Ether	0.00E+00	0.00E+00	1.90E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Bis(2-Ethylhexyl)Phthalate	0.00E+00	1.07E-14	0.00E+00	3.31E-15	1.46E-13	0.00E+00	8.54E-16	0.00E+00	
Dibenz(a,h)Anthracene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Hexachlorobenzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Naphthalene	7.35E-13	6.75E-11	3.56E-11	0.00E+00	1.27E-10	1.56E-11	0.00E+00	0.00E+00	
Nitrobenzene	0.00E+00	0.00E+00	6.19E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	

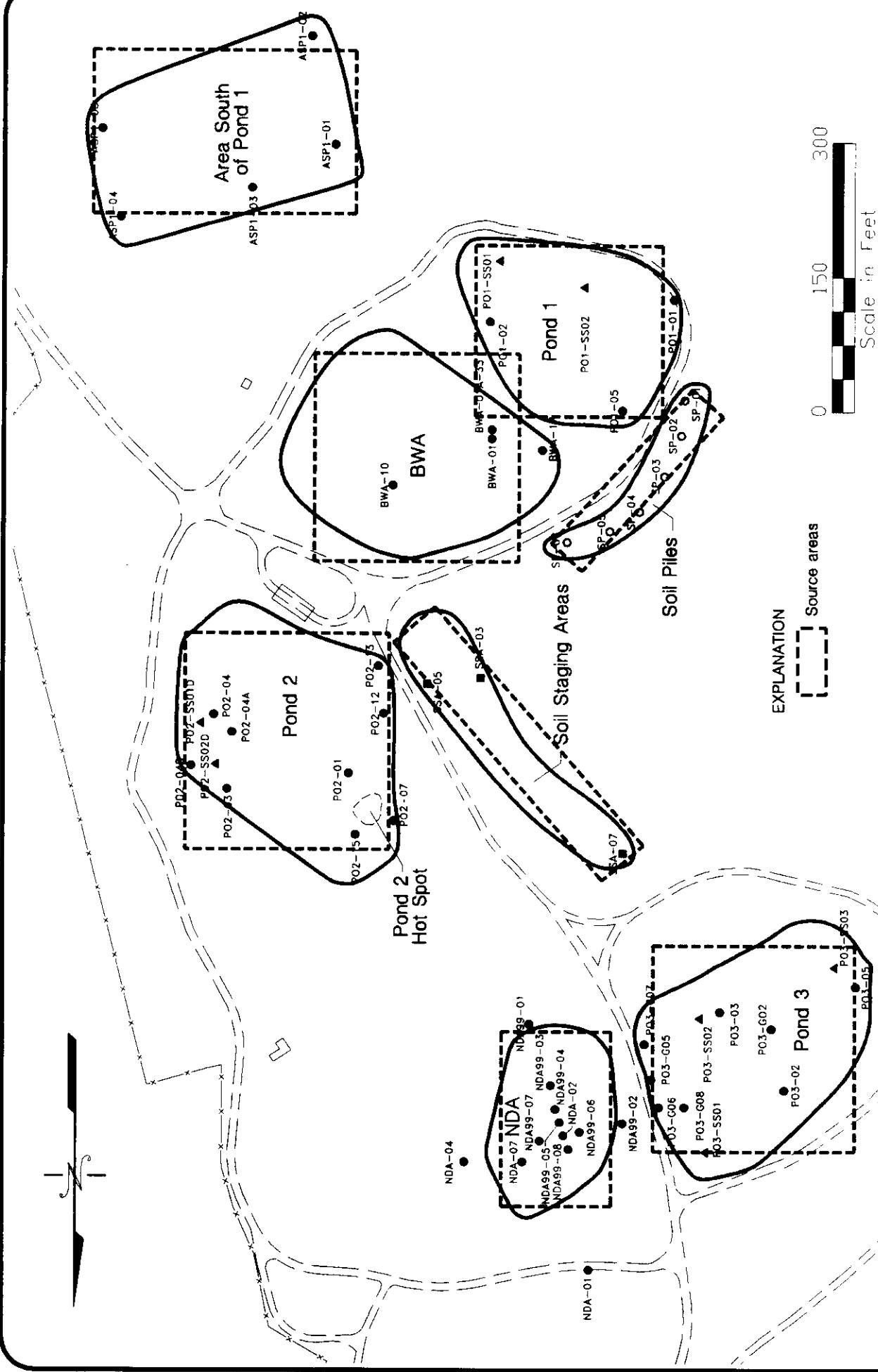
Chemical	ASP1	BWA	Estimated Emission Rate, J (g/sec-m <sup>2</sup> )				SSA
			NDA	Pond 01	Pond 02	Pond 03	
<b>Pesticides/ PCBs</b>							
Aldrin	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Aroclor-1242	0.00E+00	8.75E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>Metals</b>							
Antimony	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Arsenic	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Barium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cadmium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Copper	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Iron	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Lead	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Manganese	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Mercury	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nickel	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Selenium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Thallium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Vanadium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

The ISCST3 model was used to estimate the dispersion of passive long-term emissions from the identified areas at the site. Each source is treated as an individual area source for the purposes of the modeling. The area source model in ISCST3 is based on a numerical integration over the area in the upwind and crosswind directions of the Gaussian point source plume formula. Estimated topographic elevations at the emission sources and receptors were applied in the modeling.

Dispersion modeling of emissions was performed assuming a modified unit emission rate (0.001 grams per second). Each modeled air concentration therefore represents a relative dispersion factor that must be multiplied by an estimated chemical-specific emission rate to determine the air concentration for the constituent.

Two input files are required to run ISCST3, the control file and the meteorological data file. Both files are discussed below, along with information required to define the emission sources and receptor locations. The control file provides all the information needed to execute a model run. The specific data requirements, as they relate to modeling emission sources, are discussed in the following sections.

- **Model Options** - The modeling options were set according to EPA *Guideline on Air Quality Models (Revised)* (USEPA 1995). As such, the regulatory modeling option was selected for all modeling runs and local land use was assumed to be rural, as was assumed in the BRA. The model was run to estimate annual average air concentrations based on five years of meteorological data.
- **Source Areas** - Eight separate source areas were modeled: Pond 01, Pond 02, Pond 03, NDA, BWA, Soil Piles, the Soil Staging Area, and the Area South of Pond 1. A single rectangular area was used to represent each of these areas for the purposes of modeling, as shown in Figure D-1. The sizes of the rectangles are approximately equal to or exceed the estimated extent of the corresponding source area. In addition, the topographic elevations for the source areas were estimated from a topographic map of the site in the *Soil Investigation* (ERM 1997).
- **Receptor Data** - A receptor grid was constructed for each source area. The grid was developed to cover the entire source area using grid line spacing of 15 meters. Air concentrations were estimated by the model at each node on the grid. Terrain elevations for the grid nodes (i.e., receptors) were assumed to be the same as for the source area.

**ENVIRON**

**Figure D-1**

**AIR DISPERSION MODELING AREAS  
MARYLAND SAND, GRAVEL AND STONE  
ELKTON, MARYLAND**

- **Meteorological Data** - The ISCST3 model requires meteorological data in an ASCII-formatted file. The principal meteorological data required include hourly surface wind speed, wind direction, temperature, atmospheric stability, mixing height, frictional velocity, and Monin-Obukhov length. The model predicts the concentration value for each receptor for each hour of input meteorological data and calculates annual average air concentrations. For the purposes of this assessment, five years of meteorological data (1987 – 1991) were used. The surface air data were obtained for the national Weather Service station at the Wilmington, Delaware airport, which is approximately 20 kilometers east of the site. For the upper air data, the closest station for which appropriate data were available is in Atlantic City, New Jersey. These data sets are the same as were used in the BRA.

The maximum estimated dispersion factor was used to estimate exposure for the on-site industrial worker and the on-site resident. The maximum estimated dispersion factors are presented in Table D-7.

**TABLE D-7**  
**Predicted Dispersion Factors from the ISCST3 Modeling**

Source	Dispersion Factor ( $\mu\text{g}/\text{m}^3$ per $\text{mg}/\text{sec}\cdot\text{m}^2$ )*
Pond 1	14,573
Pond 2	15,528
Pond 3	15,352
BWA	15,426
NDA	13,036
Soil Piles	9,510
Soil Staging Areas	11,389
Area South of Pond 1	15,086

\* The units of the dispersion factor are modified from the typical ISCST3 output because a modified unit emission rate of  $0.001 \text{ g/sec}\cdot\text{m}^2$  was used in the modeling.

#### D. Estimated Air Concentration

Maximum predicted air concentrations were estimated for each source area based on the chemical-specific flux estimated provided in Tables D-3 through D-6 and the dispersion factors presented in Tables D-7. Chemical-specific air concentration are calculated as follows:

$$C_{\text{air}} = DF \times 1000 \frac{\text{mg}}{\text{g}} \times J_s \quad (\text{D-7})$$

where,

- $C_{air}$  = the maximum estimated air concentration with the source area,  $\mu\text{g}/\text{m}^3$ ;  
DF = the maximum predicted dispersion factor from ISCST3 modeling,  $\mu\text{g}/\text{m}^3$  per  $\text{mg}/\text{sec}\cdot\text{m}^2$ ; and  
 $J_s$  = the estimated long-term chemical flux at the ground surface,  $\text{g}/\text{sec}\cdot\text{m}^2$ .

A summary of the chemical-specific air concentrations presented in Tables D-8 through D-11 for the four exposure scenarios, CTE on-site industrial worker, RME on-site industrial worker, CTE on-site resident, and RME on-site resident, respectively.

TABLE D-8. SUMMARY OF CTE EXPOSURE CONCENTRATIONS  
FOR AN ON-SITE INDUSTRIAL WORKER

Chemical	Exposure Concentrations ( $\mu\text{g}/\text{m}^3$ )						SSA
	ASP1	BWA	NDA	POND 01	POND 02D	POND 03	
<b>Volatile Organic Chemicals</b>							
1,1,1-TRICHLOROETHANE, UG/KG	0.00E+00	1.90E-02	2.47E+03	4.57E-01	2.32E+01	4.33E-01	6.80E-02
1,1-DICHLOROETHENE, UG/KG	0.00E+00	3.23E-01	8.83E+00	1.20E-01	7.08E+00	1.31E-02	5.92E-03
4-METHYL-2-PENTANONE, UG/KG	0.00E+00	1.03E+00	0.00E+00	1.06E-01	4.80E-01	1.96E-01	4.08E-02
ACETONE, UG/KG	0.00E+00	0.00E+00	1.48E+01	0.00E+00	4.82E+00	0.00E+00	0.00E+00
BENZENE, UG/KG	0.00E+00	3.12E+00	4.65E+01	2.30E-02	3.75E+00	8.31E-03	3.46E-03
CHLOROBENZENE, UG/KG	0.00E+00	1.61E+01	1.43E+03	1.52E-01	1.09E+01	1.94E-01	2.82E-01
DIBROMOCHLOROMETHANE, UG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ETHYLBENZENE, UG/KG	0.00E+00	1.73E+00	6.70E+01	6.05E-03	3.82E+00	8.19E-00	2.25E-02
M,P-XYLENE, UG/KG	0.00E+00	6.50E+00	2.54E+02	7.81E-05	2.00E+01	2.55E-01	3.71E-02
METHYLENE CHLORIDE, UG/KG	0.00E+00	0.00E+00	0.00E+00	4.91E-02	8.53E+01	0.00E+00	6.11E-03
O-XYLENE, UG/KG	0.00E+00	2.27E+00	8.43E+01	9.48E-03	8.38E+00	2.06E+01	2.61E-02
TETRACHLOROETHENE, UG/KG	0.00E+00	2.36E+01	1.63E+03	0.00E+00	4.96E+01	6.10E+01	7.91E-02
TOLUENE, UG/KG	0.00E+00	4.64E+01	2.83E+03	6.51E-01	1.31E+01	7.79E-02	3.05E+01
TRICHLOROETHENE, UG/KG	0.00E+00	2.10E+01	3.24E+02	4.58E-03	1.17E+01	2.18E-01	4.44E-03
VINYL CHLORIDE, UG/KG	0.00E+00	0.00E+00	0.00E+00	2.48E-01	1.33E+00	8.80E-02	3.52E-04
<b>Semi-Volatile Organic Chemicals</b>							
1,2,4-TRICHLOROBENZENE, UG/KG	0.00E+00	5.27E-01	9.28E-03	3.71E-05	1.23E-03	3.45E-03	3.68E-04
1,3-DICHLOROBENZENE, UG/KG	0.00E+00	1.36E-01	1.38E+00	3.22E-04	0.00E+00	0.00E+00	9.80E-05
1,4-DICHLOROBENZENE, UG/KG	0.00E+00	3.92E-01	7.97E-01	0.00E+00	4.58E-01	9.57E-02	6.06E-04
3,3'-DICHLOROBENZIDINE, UG/KG	0.00E+00	4.78E-09	1.11E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4-METHYLPHENOL, UG/KG	0.00E+00	1.39E-05	0.00E+00	1.54E-06	5.76E-04	1.69E-06	3.10E-06
BENZO(A)PYRENE, UG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BENZO(B)FLUORANTHENE, UG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BIS(2-CHLOROETHYL)ETHER, UG/KG	0.00E+00	0.00E+00	6.03E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BIS(2-ETHYLHEXYL)PHTHALATE, UG/KG	0.00E+00	4.04E-07	0.00E+00	1.18E-07	5.55E-06	0.00E+00	1.99E-08
DIBENZ(A,H)ANTHRACENE, UG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
HEXAACHLOROBENZENE, UG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NAPHTHALENE, UG/KG	2.72E-05	2.55E-03	1.14E-03	0.00E+00	4.83E-03	5.86E-04	0.00E+00
NITROBENZENE, UG/KG	0.00E+00	0.00E+00	1.98E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>Pesticides/PCBs</b>							
ALDRIN, UG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
AROCLOR-1242, UG/KG	0.00E+00	3.31E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>Metals</b>							
ANTIMONY, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ARSENIC, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BARIUM, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CADMIUM, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
COPPER, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
IRON, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LEAD, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MANGANESE, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MERCURY, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NICKEL, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SELENIUM, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
THALLIUM, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
VANADIUM, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TABLE D-9. SUMMARY OF RME EXPOSURE CONCENTRATIONS  
FOR AN ON-SITE INDUSTRIAL WORKER

Chemical	ASPI	BWA	NDA	Exposure Concentrations ( $\mu\text{g}/\text{m}^3$ )				SP	SSA
				POND 01	POND 02D	POND 03	POND 04		
<b>Volatile Organic Chemicals</b>									
1,1,1-TRICHLOROETHANE, UG/KG	0.00E+00	8.49E-01	1.11E-03	2.04E-01	1.26E+01	1.94E-01	3.04E-02	1.12E-03	
1,1,1-DICHLOROETHENE, UG/KG	0.00E+00	1.44E-01	3.96E+00	5.37E-02	3.17E+00	5.85E-03	2.65E-03	0.00E+00	
4-METHYL-2-PENTANONE, UG/KG	0.00E+00	4.60E-01	0.00E+00	4.73E-02	2.15E-01	8.76E-02	1.82E-02	4.49E-03	
ACETONE, UG/KG	0.00E+00	0.00E+00	6.62E+00	0.00E+00	2.15E+00	0.00E+00	0.00E+00	0.00E+00	
BENZENE, UG/KG	0.00E+00	1.39E-00	2.08E+01	1.03E-02	1.68E+00	3.72E-03	1.55E-03	7.80E-03	
CHLOROBENZENE, UG/KG	0.00E+00	7.20E+00	6.39E+02	6.82E-02	4.90E+00	8.68E-04	1.26E-01	9.12E-02	
DIBROMOCHLOROMETHANE, UG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
ETHYLBENZENE, UG/KG	0.00E+00	7.74E-01	2.99E+01	2.70E-03	1.71E+00	3.66E-00	1.00E-02	2.94E-03	
M,P,XYLENE, UG/KG	0.00E+00	2.91E-00	1.14E+02	3.49E-05	8.96E+00	1.14E+01	1.48E-04	1.66E-02	
METHYLEN CHLORIDE, UG/KG	0.00E+00	0.00E+00	0.00E+00	2.20E-02	3.81E+01	0.00E+00	2.73E-03	0.00E+00	
O-XYLELE, UG/KG	0.00E+00	1.02E+00	3.77E+01	4.24E-03	3.75E+00	9.23E-00	1.17E-02	7.17E-05	
TETRACHLOROETHENE, UG/KG	0.00E+00	1.05E+01	7.31E+02	0.00E+00	2.22E+01	2.73E-01	3.54E-02	0.00E+00	
TOLUENE, UG/KG	0.00E+00	2.08E+01	1.27E+03	2.91E-01	5.83E+00	3.48E-02	1.36E-01	1.98E-03	
TRICHLOROETHENE, UG/KG	0.00E+00	9.39E+00	1.45E+02	2.05E-03	5.21E+00	9.74E-02	3.93E-02	1.57E-04	
VINYL CHLORIDE, UG/KG	0.00E+00	0.00E+00	0.00E+00	1.11E-01	5.95E-01	2.41E-02	1.89E-01	0.00E+00	
<b>Semi-volatile Organic Chemicals</b>									
1,2,4-TRICHLOROBENZENE, UG/KG	0.00E+00	2.36E-01	4.15E-03	1.66E-05	5.50E-04	1.54E-03	1.64E-04	4.39E-05	
1,3-DICHLOROBENZENE, UG/KG	0.00E+00	6.09E-02	7.06E-01	1.44E-04	0.00E+00	0.00E+00	4.03E-05	0.00E+00	
1,4-DICHLOROBENZENE, UG/KG	0.00E+00	1.75E-01	3.56E-01	0.00E+00	2.03E-01	4.28E-02	2.71E-04	0.00E+00	
3,3'-DICHLOROBENZIDINE, UG/KG	0.00E+00	2.14E-09	4.99E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
4-METHYLPHENOL, UG/KG	0.00E+00	6.21E-06	0.00E+00	6.89E-07	2.57E-04	7.57E-07	1.38E-06	0.00E+00	
BENZO(A)PYRENE, UG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
BENZO(B)FLUORANTHENE, UG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
BIS(2-CHLOROETHYL)ETHER, UG/KG	0.00E+00	0.00E+00	2.71E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
BIS(2-ETHYLHEXYL)PHthalate, UG/KG	0.00E+00	1.81E-07	0.00E+00	5.28E-08	2.48E-06	0.00E+00	8.90E-09	0.00E+00	
DIBENZ(A,H)ANTHRACENE, UG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
HEXAACHLOROBENZENE, UG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
NAPHTHALENE, UG/KG	1.21E-05	1.14E-03	5.09E-04	0.00E+00	2.16E-03	2.62E-04	0.00E+00	0.00E+00	
NITROBENZENE, UG/KG	0.00E+00	0.00E+00	8.84E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
<b>Pesticides/PCBs</b>									
ALDRIN, UG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
AROCOLOR-1242, UG/KG	0.00E+00	1.48E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
<b>Metals</b>									
ANTIMONY, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
ARSENIC, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
BARIUM, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
CADMIUM, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
COPPER, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
IRON, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
LEAD, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
MANGANESE, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
MERCURY, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
NICKEL, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
SELENIUM, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
THALLIUM, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
VANADIUM, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	

TABLE D-10. SUMMARY OF CTE EXPOSURE CONCENTRATIONS  
FOR AN ON-SITE RESIDENT

Chemical	ASPI	BWA	NDA	Exposure Concentrations ( $\mu\text{g}/\text{m}^3$ )			SP	SSA
				POND 01	POND 02D	POND 03		
<b>Volatile Organic Chemicals</b>								
1,1,1-TRICHLOROETHANE, UG/KG	0.00E+00	1.41E+02	1.84E+03	3.40E-01	2.11E+01	3.23E-01	5.07E-02	1.87E-03
1,1-DICHLOROETHENE, UG/KG	0.00E+00	2.41E+01	6.60E+00	8.95E-02	5.28E+00	9.75E-03	4.41E-03	0.00E+00
4-METHYL-2-PENTANONE, UG/KG	0.00E+00	7.67E+01	0.00E+00	7.89E-02	3.58E-01	1.46E-01	3.04E-02	7.48E-03
ACETONE, UG/KG	0.00E+00	0.00E+00	1.10E+01	0.00E+00	3.50E+00	0.00E+00	0.00E+00	0.00E+00
BENZENE, UG/KG	0.00E+00	2.32E+00	3.47E+01	1.72E-02	2.80E+00	6.19E-03	2.58E-03	1.30E-02
CHLOROBENZENE, UG/KG	0.00E+00	1.20E+01	1.07E+03	1.14E-01	8.16E+00	1.45E+01	2.10E-01	1.52E-01
DIBROMOCHLOROMETHANE, UG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ETHYLBENZENE, UG/KG	0.00E+00	1.29E+00	4.99E+01	4.51E-03	2.83E+00	6.10E+00	1.67E-02	4.90E-03
M, P-XYLENE, UG/KG	0.00E+00	4.84E+00	1.59E+02	5.82E-05	1.49E+01	1.90E+01	2.77E-02	2.46E-04
METHYLENE CHLORIDE, UG/KG	0.00E+00	0.00E+00	0.00E+00	3.66E-02	6.35E+01	0.00E+00	4.56E-03	0.00E+00
O-XYLENE, UG/KG	0.00E+00	1.69E+00	6.28E+01	7.07E-03	6.25E+00	1.54E+01	1.94E-02	1.19E-04
TETRACHLOROETHENE, UG/KG	0.00E+00	1.76E+01	1.22E+03	0.00E+00	3.70E+01	4.55E+01	5.90E-02	0.00E+00
TOLUENE, UG/KG	0.00E+00	3.46E+01	2.11E+03	4.85E-01	9.75E+00	5.81E-02	2.27E-01	3.31E-03
TRICHLOROETHENE, UG/KG	0.00E+00	1.56E+01	2.41E+02	3.41E-03	8.69E+00	1.62E-01	6.56E-02	2.62E-04
VINYL CHLORIDE, UG/KG	0.00E+00	0.00E+00	0.00E+00	1.85E-01	9.92E-01	4.02E-02	3.15E-01	0.00E+00
<b>Semivolatile Organic Chemicals</b>								
1,2,4-TRICHLOROBENZENE, UG/KG	0.00E+00	3.93E-01	6.92E-03	2.77E-05	9.17E-04	2.57E-03	2.74E-04	7.31E-05
1,3-DICHLOROBENZENE, UG/KG	0.00E+00	1.01E+01	1.18E+00	2.40E-04	0.00E+00	0.00E+00	6.71E-05	0.00E+00
1,4-DICHLOROBENZENE, UG/KG	0.00E+00	2.92E-01	5.94E-01	0.00E+00	3.41E-01	7.13E-02	4.52E-04	0.00E+00
3,3'-DICHLOROBENZIDINE, UG/KG	0.00E+00	3.56E-09	8.22E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4-METHYLPHENOL, UG/KG	0.00E+00	1.03E-05	0.00E+00	1.5E-06	4.29E-04	1.26E-06	2.31E-06	0.00E+00
BENZO[ <i>a</i> ]PYRENE, UG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BENZO[B]FLUORANTHENE, UG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BIS[2-CHLOROETHYL]ETHER, UG/KG	0.00E+00	4.51E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BIS[2-ETHYLHEXYL]PHthalate, UG/KG	0.00E+00	3.01E-07	0.00E+00	8.81E-08	4.14E-06	0.00E+00	1.48E-08	0.00E+00
DIBENZA[ <i>A,H</i> ]ANTHRACENE, UG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
HEXAChLOROBENZENE, UG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NAPHTHALENE, UG/KG	2.02E-05	1.90E-03	8.48E-04	0.00E+00	3.60E-03	4.36E-04	0.00E+00	0.00E+00
NITROBENZENE, UG/KG	0.00E+00	0.00E+00	1.47E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>Pesticides/PCBs</b>								
ALDRIN, UG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
AROCOLOR-1242, UG/KG	0.00E+00	2.46E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>Metals</b>								
ANTIMONY, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ARSENIC, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BARIUM, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CADMIUM, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
COPPER, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
IRON, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LEAD, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MANGANESE, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MERCURY, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NICKEL, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SELENIUM, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
THALLIUM, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
VANADIUM, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TABLE D-11. SUMMARY OF RME EXPOSURE CONCENTRATIONS  
FOR AN ON-SITE RESIDENT

Chemical	ASPI	BWA	NDA	Exposure Concentrations ( $\mu\text{g}/\text{m}^3$ )			SP	SSA
				POND 01	POND 02D	POND 03		
<b>Volatile Organic Chemicals</b>								
1,1,1-TRICHLOROETHANE, UG/KG	0.00E+00	7.75E+01	1.01E+03	1.86E-01	1.15E+01	1.77E-01	2.78E-02	1.02E-03
1,1-DICHLOROETHENE, UG/KG	0.00E+00	1.32E+01	3.61E+00	4.90E-02	2.89E+00	5.34E-03	2.42E-03	0.00E+00
4-METHYL-2-PENTANONE, UG/KG	0.00E+00	4.20E+01	0.00E+00	4.32E-02	1.96E-01	8.00E-02	1.67E-02	4.10E-03
ACETONE, UG/KG	0.00E+00	0.00E+00	6.04E+00	0.00E+00	1.97E+00	0.00E+00	0.00E+00	0.00E+00
BENZENE, UG/KG	0.00E+00	1.27E+00	1.90E+01	9.41E-03	1.53E+00	3.39E-03	1.41E-03	7.12E-03
CHLOROBENZENE, UG/KG	0.00E+00	6.57E+00	5.82E+02	6.22E-02	4.47E+00	7.92E+00	1.15E-01	8.33E-02
DIBROMOCHLOROMETHANE, UG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EJHYL BENZENE, UG/KG	0.00E+00	7.07E+01	2.73E+01	2.47E-03	1.56E+00	3.34E+00	9.17E-03	2.68E-03
M,P,XYLENE, UG/KG	0.00E+00	2.65E+00	1.04E+02	3.19E-05	8.18E+00	1.04E+01	1.52E-02	1.35E-04
METHYLENE CHLORIDE, UG/KG	0.00E+00	0.00E+00	0.00E+00	2.00E-02	3.48E+01	0.00E+00	2.50E-03	0.90E+00
O-XYLYLENE, UG/KG	0.00E+00	9.27E+01	3.44E+01	3.87E-03	3.42E+00	8.43E+00	1.06E-02	6.54E-05
TETRACHLOROETHENE, UG/KG	0.00E+00	9.63E+00	6.63E+02	0.00E+00	2.03E+01	2.49E+01	3.23E-02	0.00E+00
TOLUENE, UG/KG	0.00E+00	1.89E+01	1.16E+03	2.66E-01	5.34E+00	3.18E-02	1.24E-01	1.81E-03
TRICHLOROETHENE, UG/KG	0.00E+00	8.57E+00	1.32E+02	1.87E-03	4.76E+00	8.89E-02	3.59E-02	1.44E-04
VINYL CHLORIDE, UG/KG	0.00E+00	0.00E+00	0.00E+00	1.01E-01	5.44E-01	2.20E-02	1.73E-01	0.00E+00
<b>Semi-volatile Organic Chemicals</b>								
1,2,4-TRICHLOROBENZENE, UG/KG	0.00E+00	2.15E+01	3.79E+03	1.52E-05	5.02E-04	1.41E-03	1.50E-04	4.00E-05
1,3-DICHLOROBENZENE, UG/KG	0.00E+00	5.56E-02	6.44E+01	1.31E-04	0.00E+00	0.00E+00	3.68E-05	0.00E+00
1,4-DICHLOROBENZENE, UG/KG	0.00E+00	1.60E-01	3.25E+01	0.00E+00	1.87E-01	3.91E-02	2.48E-04	0.00E+00
3,3'-DICHLOROBENZIDINE, UG/KG	0.00E+00	1.95E-09	4.57E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4-METHYLPHENOL, UG/KG	0.00E+00	5.67E-06	0.00E+00	6.29E-07	2.35E-04	6.91E-07	1.26E-06	0.00E+00
BENZO(A)PYRENE, UG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BENZO(B)FLUORANTHENE, UG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BIS(2-CHLOROETHYL)ETHER, UG/KG	0.00E+00	2.47E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BIS(2-ETHYLHEXYL)PHthalate, UG/KG	0.00E+00	1.65E-07	0.00E+00	4.82E-08	2.27E-06	0.00E+00	8.12E-09	0.00E+00
DIBENZ(A,H)ANTHRACENE, UG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
HEXAChLOROBENZENE, UG/KG	0.00E+00	1.11E-05	1.04E-03	4.63E-04	0.00E+00	1.97E-03	2.39E-04	0.00E+00
NAFTHALENE, UG/KG	0.00E+00	0.00E+00	8.07E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NITROBENZENE, UG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>Pesticides/PCBs</b>								
ALDRIN, UG/KG	0.00E+00	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
AROCLO-1242, UG/KG	0.00E+00	1.3498E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>Metals</b>								
ANTIMONY, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ARSENIC, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BARIUM, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CADMIUM, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
COPPER, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
IRON, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LEAD, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MANGANESE, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MERCURY, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NICKEL, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SELENIUM, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
THALLIUM, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
VANADIUM, MG/KG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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**APPENDIX E**  
**CHRONIC DAILY INTAKES OF CHEMICALS OF POTENTIAL CONCERN**

**TABLE E - 1**  
**Carcinogenic Chronic Daily Intake**  
**Central Tendency Exposure by an On-Site Industrial Worker at ASP1**

<u>CHEMICALS</u>	<u>INGEST SOIL</u>	<u>DERMAL CONTACT</u>	<u>INHALE VAPOR</u>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	ND	ND	ND
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	ND	ND	ND
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	ND	ND	ND
TRICHLOROETHENE	ND	ND	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	4.8E-10	1.9E-10	1.1E-10
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	2.3E-07	3.0E-08	ND
BARIUM	3.7E-06	1.5E-07	ND
CADMIUM	ND	ND	ND
COPPER	2.3E-07	9.2E-09	ND
IRON	2.6E-04	1.0E-05	ND
LEAD	2.0E-07	8.0E-09	ND
MANGANESE	9.6E-07	3.9E-08	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	2.2E-06	8.8E-08	ND
TOTAL DOSE:	2.70E-04	1.08E-05	1.14E-10

ND = Not detected

**TABLE E - 2**  
**Carcinogenic Chronic Daily Intake**  
**Reasonable Maximum Exposure by an On-Site Industrial Worker at ASP1**

<u>CHEMICALS</u>	<u>INGEST SOIL</u>	<u>DERMAL CONTACT</u>	<u>INHALE VAPOR</u>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	ND	ND	ND
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	ND	ND	ND
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	ND	ND	ND
TRICHLOROETHENE	ND	ND	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	8.0E-09	3.7E-09	8.5E-10
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	3.8E-06	5.7E-07	ND
BARIUM	6.1E-05	2.8E-06	ND
CADMIUM	ND	ND	ND
COPPER	3.8E-06	1.8E-07	ND
IRON	4.4E-03	2.0E-04	ND
LEAD	3.3E-06	1.5E-07	ND
MANGANESE	1.6E-05	7.5E-07	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	3.7E-05	1.7E-06	ND
TOTAL DOSE:	4.49E-03	2.09E-04	8.49E-10

ND = Not detected

**TABLE E - 3**  
**Carcinogenic Chronic Daily Intake**  
**Central Tendency Exposure by an On-Site Resident at ASPI**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	ND	ND	ND
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	ND	ND	ND
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	ND	ND	ND
TRICHLOROETHENE	ND	ND	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	7.7E-09	6.2E-10	6.7E-10
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	3.7E-06	9.5E-08	ND
BARIUM	5.9E-05	4.7E-07	ND
CADMIUM	ND	ND	ND
COPPER	3.7E-06	3.0E-08	ND
IRON	4.2E-03	3.4E-05	ND
LEAD	3.2E-06	2.6E-08	ND
MANGANESE	1.5E-05	1.2E-07	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	3.5E-05	2.8E-07	ND
<b>TOTAL DOSE:</b>	<b>4.31E-03</b>	<b>3.46E-05</b>	<b>6.68E-10</b>

ND = Not detected

**TABLE E - 4**  
**Carcinogenic Chronic Daily Intake**  
**Reasonable Maximum Exposure by an On-Site Resident at ASP1**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	ND	ND	ND
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	ND	ND	ND
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	ND	ND	ND
TRICHLOROETHENE	ND	ND	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	7.2E-08	7.0E-09	1.8E-09
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	3.4E-05	1.1E-06	ND
BARIUM	5.5E-04	5.3E-06	ND
CADMIUM	ND	ND	ND
COPPER	3.4E-05	3.4E-07	ND
IRON	3.9E-02	3.8E-04	ND
LEAD	3.0E-05	2.9E-07	ND
MANGANESE	1.4E-04	1.4E-06	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	3.3E-04	3.2E-06	ND
<b>TOTAL DOSE:</b>	<b>4.03E-02</b>	<b>3.94E-04</b>	<b>1.78E-09</b>

ND = Not detected

**TABLE E - 5**  
**Noncarcinogenic Chronic Daily Intake**  
**Central Tendency Exposure by an On-Site Industrial Worker at ASP1**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	ND	ND	ND
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	ND	ND	ND
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	ND	ND	ND
TRICHLOROETHENE	ND	ND	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	6.8E-09	2.7E-09	1.6E-09
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBs</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	3.2E-06	4.1E-07	ND
BARIUM	5.1E-05	2.1E-06	ND
CADMIUM	ND	ND	ND
COPPER	3.2E-06	1.3E-07	ND
IRON	3.7E-03	1.5E-04	ND
LEAD	2.8E-06	1.1E-07	ND
MANGANESE	1.4E-05	5.4E-07	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	3.1E-05	1.2E-06	ND
TOTAL DOSE:	3.77E-03	1.51E-04	1.59E-09

ND = Not detected

**TABLE E - 6**  
**Noncarcinogenic Chronic Daily Intake**  
**Reasonable Maximum Exposure by an On-Site Industrial Worker at ASP1**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	ND	ND	ND
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	ND	ND	ND
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	ND	ND	ND
TRICHLOROETHENE	ND	ND	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	2.3E-08	1.0E-08	2.4E-09
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	1.1E-05	1.6E-06	ND
BARIUM	1.7E-04	7.9E-06	ND
CADMIUM	ND	ND	ND
COPPER	1.1E-05	5.0E-07	ND
IRON	1.2E-02	5.7E-04	ND
LEAD	9.3E-06	4.3E-07	ND
MANGANESE	4.5E-05	2.1E-06	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	1.0E-04	4.8E-06	ND
TOTAL DOSE:	1.26E-02	5.85E-04	2.38E-09

ND = Not detected

**TABLE E - 7**  
**Noncarcinogenic Chronic Daily Intake**  
**Central Tendency Exposure by an On-Site Resident at ASPI**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	ND	ND	ND
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	ND	ND	ND
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	ND	ND	ND
TRICHLOROETHENE	ND	ND	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	6.0E-08	4.8E-09	5.2E-09
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	2.9E-05	7.4E-07	ND
BARIUM	4.6E-04	3.7E-06	ND
CADMIUM	ND	ND	ND
COPPER	2.9E-05	2.3E-07	ND
IRON	3.3E-02	2.6E-04	ND
LEAD	2.5E-05	2.0E-07	ND
MANGANESE	1.2E-04	9.6E-07	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	2.7E-04	2.2E-06	ND
TOTAL DOSE:	3.35E-02	2.69E-04	5.19E-09

ND = Not detected

**TABLE E - 8**  
**Noncarcinogenic Chronic Daily Intake**  
**Reasonable Maximum Exposure by an On-Site Resident at ASP1**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	ND	ND	ND
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	ND	ND	ND
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	ND	ND	ND
TRICHLOROETHENE	ND	ND	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	1.7E-07	1.6E-08	4.1E-09
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	8.0E-05	2.5E-06	ND
BARIUM	1.3E-03	1.2E-05	ND
CADMIUM	ND	ND	ND
COPPER	8.0E-05	7.8E-07	ND
IRON	9.1E-02	8.9E-04	ND
LEAD	6.9E-05	6.8E-07	ND
MANGANESE	3.4E-04	3.3E-06	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	7.7E-04	7.5E-06	ND
TOTAL DOSE:	9.39E-02	9.18E-04	4.15E-09

ND = Not detected

**TABLE E - 9**  
**Carcinogenic Chronic Daily Intake**  
**Central Tendency Exposure by an On-Site Industrial Worker at BWA**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	1.2E-05	2.3E-08	8.0E-04
1,1-DICHLOROETHENE	6.7E-07	1.3E-09	1.4E-04
4-METHYL-2-PENTANONE	1.0E-06	1.2E-07	4.3E-06
ACETONE	ND	ND	ND
BENZENE	3.6E-07	7.1E-10	1.3E-05
CHLOROBENZENE	7.0E-06	8.4E-07	6.7E-05
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	5.6E-07	6.7E-08	7.3E-06
M,P-XYLENE	2.3E-06	2.8E-07	2.7E-05
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	1.0E-06	1.2E-07	9.5E-06
TETRACHLOROETHENE	3.7E-06	4.4E-07	9.9E-05
TOLUENE	8.7E-06	1.0E-06	1.9E-04
TRICHLOROETHENE	2.1E-06	2.5E-07	8.8E-05
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	3.1E-06	1.3E-06	2.2E-06
1,3-DICHLOROBENZENE	2.0E-07	8.0E-08	5.7E-07
1,4-DICHLOROBENZENE	6.8E-07	2.7E-07	1.6E-06
3,3'-DICHLOROBENZIDINE	1.3E-10	5.0E-11	2.0E-14
4-METHYLPHENOL	4.3E-09	1.7E-09	5.8E-11
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	9.9E-08	3.9E-08	1.7E-12
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	7.8E-08	3.1E-08	1.1E-08
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	8.6E-10	2.1E-10	1.4E-11
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	1.6E-08	2.0E-09	ND
BARIUM	2.3E-06	9.2E-08	ND
CADMIUM	1.3E-09	5.0E-11	ND
COPPER	2.1E-07	8.4E-09	ND
IRON	1.5E-04	5.9E-06	ND
LEAD	6.4E-07	2.6E-08	ND
MANGANESE	1.0E-06	4.1E-08	ND
MERCURY	ND	ND	ND
NICKEL	8.6E-07	3.4E-08	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	2.4E-06	9.6E-08	ND
TOTAL DOSE:	1.97E-04	1.10E-05	1.45E-03

ND = Not detected

**TABLE E - 10**  
**Carcinogenic Chronic Daily Intake**  
**Reasonable Maximum Exposure by an On-Site Industrial Worker at BWA**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	1.9E-04	4.5E-07	5.9E-03
1,1-DICHLOROETHENE	1.1E-05	2.6E-08	1.0E-03
4-METHYL-2-PENTANONE	1.7E-05	2.3E-06	3.2E-05
ACETONE	ND	ND	ND
BENZENE	5.9E-06	1.4E-08	9.7E-05
CHLOROBENZENE	1.2E-04	1.6E-05	5.0E-04
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	9.3E-06	1.3E-06	5.4E-05
M,P-XYLENE	3.8E-05	5.4E-06	2.0E-04
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	1.7E-05	2.3E-06	7.1E-05
TETRACHLOROETHENE	6.1E-05	8.5E-06	7.4E-04
TOLUENE	1.5E-04	2.0E-05	1.5E-03
TRICHLOROETHENE	3.5E-05	4.9E-06	6.6E-04
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	5.2E-05	2.4E-05	1.6E-05
1,3-DICHLOROBENZENE	3.3E-06	1.5E-06	4.3E-06
1,4-DICHLOROBENZENE	1.1E-05	5.3E-06	1.2E-05
3,3'-DICHLOROBENZIDINE	2.1E-09	9.7E-10	1.5E-13
4-METHYLPHENOL	7.2E-08	3.3E-08	4.3E-10
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	1.6E-06	7.6E-07	1.3E-11
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	1.3E-06	6.0E-07	8.0E-08
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	1.4E-08	4.0E-09	1.0E-10
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	2.6E-07	3.9E-08	ND
BARIUM	3.8E-05	1.8E-06	ND
CADMIUM	2.1E-08	9.7E-10	ND
COPPER	3.5E-06	1.6E-07	ND
IRON	2.4E-03	1.1E-04	ND
LEAD	1.1E-05	4.9E-07	ND
MANGANESE	1.7E-05	7.9E-07	ND
MERCURY	ND	ND	ND
NICKEL	1.4E-05	6.6E-07	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	4.0E-05	1.9E-06	ND
TOTAL DOSE:	3.29E-03	2.13E-04	1.08E-02

ND = Not detected

**TABLE E - 11**  
**Carcinogenic Chronic Daily Intake**  
**Central Tendency Exposure by an On-Site Resident at BWA**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	1.8E-04	7.4E-08	4.7E-03
1,1-DICHLOROETHENE	1.1E-05	4.3E-09	7.9E-04
4-METHYL-2-PENTANONE	1.6E-05	3.8E-07	2.5E-05
ACETONE	ND	ND	ND
BENZENE	5.7E-06	2.3E-09	7.7E-05
CHLOROBENZENE	1.1E-04	2.7E-06	4.0E-04
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	8.9E-06	2.1E-07	4.3E-05
M,P-XYLENE	3.7E-05	8.9E-07	1.6E-04
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	1.6E-05	3.8E-07	5.6E-05
TETRACHLOROETHENE	5.9E-05	1.4E-06	5.8E-04
TOLUENE	1.4E-04	3.3E-06	1.1E-03
TRICHLOROETHENE	3.4E-05	8.1E-07	5.2E-04
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	5.0E-05	4.0E-06	1.3E-05
1,3-DICHLOROBENZENE	3.2E-06	2.6E-07	3.3E-06
1,4-DICHLOROBENZENE	1.1E-05	8.7E-07	9.6E-06
3,3'-DICHLOROBENZIDINE	2.0E-09	1.6E-10	1.2E-13
4-METHYLPHENOL	6.9E-08	5.5E-09	3.4E-10
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	1.6E-06	1.3E-07	9.9E-12
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	1.2E-06	9.9E-08	6.3E-08
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	1.4E-08	6.6E-10	8.1E-11
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	2.5E-07	6.4E-09	ND
BARIUM	3.7E-05	3.0E-07	ND
CADMIUM	2.0E-08	1.6E-10	ND
COPPER	3.4E-06	2.7E-08	ND
IRON	2.3E-03	1.9E-05	ND
LEAD	1.0E-05	8.2E-08	ND
MANGANESE	1.6E-05	1.3E-07	ND
MERCURY	ND	ND	ND
NICKEL	1.4E-05	1.1E-07	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	3.9E-05	3.1E-07	ND
TOTAL DOSE:	3.16E-03	3.53E-05	8.48E-03

ND = Not detected

**TABLE E - 12**  
**Carcinogenic Chronic Daily Intake**  
**Reasonable Maximum Exposure by an On-Site Resident at BWA**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	1.7E-03	8.4E-07	1.2E-02
1,1-DICHLOROETHENE	1.0E-04	4.9E-08	2.1E-03
4-METHYL-2-PENTANONE	1.5E-04	4.4E-06	6.7E-05
ACETONE	ND	ND	ND
BENZENE	5.3E-05	2.6E-08	2.0E-04
CHLOROBENZENE	1.0E-03	3.1E-05	1.1E-03
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	8.3E-05	2.4E-06	1.1E-04
M,P-XYLENE	3.4E-04	1.0E-05	4.3E-04
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	1.5E-04	4.4E-06	1.5E-04
TETRACHLOROETHENE	5.5E-04	1.6E-05	1.5E-03
TOLUENE	1.3E-03	3.8E-05	3.0E-03
TRICHLOROETHENE	3.1E-04	9.2E-06	1.4E-03
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	4.7E-04	4.6E-05	3.4E-05
1,3-DICHLOROBENZENE	3.0E-05	2.9E-06	8.9E-06
1,4-DICHLOROBENZENE	1.0E-04	9.9E-06	2.6E-05
3,3'-DICHLOROBENZIDINE	1.9E-08	1.8E-09	3.1E-13
4-METHYLPHENOL	6.4E-07	6.3E-08	9.1E-10
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	1.5E-05	1.4E-06	2.6E-11
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	1.2E-05	1.1E-06	1.7E-07
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBs</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	1.3E-07	7.5E-09	2.2E-10
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	2.3E-06	7.3E-08	ND
BARIUM	3.4E-04	3.4E-06	ND
CADMIUM	1.9E-07	1.8E-09	ND
COPPER	3.1E-05	3.1E-07	ND
IRON	2.2E-02	2.1E-04	ND
LEAD	9.6E-05	9.3E-07	ND
MANGANESE	1.5E-04	1.5E-06	ND
MERCURY	ND	ND	ND
NICKEL	1.3E-04	1.3E-06	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	3.6E-04	3.5E-06	ND
TOTAL DOSE:	2.95E-02	4.02E-04	2.26E-02

ND = Not detected

**TABLE E - 13**  
**Noncarcinogenic Chronic Daily Intake**  
**Central Tendency Exposure by an On-Site Industrial Worker at BWA**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	1.6E-04	3.2E-07	1.1E-02
1,1-DICHLOROETHENE	9.4E-06	1.9E-08	1.9E-03
4-METHYL-2-PENTANONE	1.4E-05	1.7E-06	6.0E-05
ACETONE	ND	ND	ND
BENZENE	5.0E-06	1.0E-08	1.8E-04
CHLOROBENZENE	9.8E-05	1.2E-05	9.4E-04
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	7.8E-06	9.3E-07	1.0E-04
M,P-XYLENE	3.2E-05	3.9E-06	3.8E-04
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	1.4E-05	1.7E-06	1.3E-04
TETRACHLOROETHENE	5.1E-05	6.2E-06	1.4E-03
TOLUENE	1.2E-04	1.5E-05	2.7E-03
TRICHLOROETHENE	2.9E-05	3.5E-06	1.2E-03
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	4.4E-05	1.8E-05	3.1E-05
1,3-DICHLOROBENZENE	2.8E-06	1.1E-06	8.0E-06
1,4-DICHLOROBENZENE	9.5E-06	3.8E-06	2.3E-05
3,3'-DICHLOROBENZIDINE	1.8E-09	7.0E-10	2.8E-13
4-METHYLPHENOL	6.0E-08	2.4E-08	8.2E-10
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	1.4E-06	5.5E-07	2.4E-11
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	1.1E-06	4.3E-07	1.5E-07
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	1.2E-08	2.9E-09	1.9E-10
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	2.2E-07	2.8E-08	ND
BARIUM	3.2E-05	1.3E-06	ND
CADMIUM	1.8E-08	7.0E-10	ND
COPPER	2.9E-06	1.2E-07	ND
IRON	2.1E-03	8.2E-05	ND
LEAD	9.0E-06	3.6E-07	ND
MANGANESE	1.4E-05	5.8E-07	ND
MERCURY	ND	ND	ND
NICKEL	1.2E-05	4.8E-07	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	3.4E-05	1.4E-06	ND
TOTAL DOSE:	2.76E-03	1.55E-04	2.02E-02

ND = Not detected

**TABLE E - 14**  
**Noncarcinogenic Chronic Daily Intake**  
**Reasonable Maximum Exposure by an On-Site Industrial Worker at BWA**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	5.4E-04	1.2E-06	1.7E-02
1,1-DICHLOROETHENE	3.1E-05	7.3E-08	2.8E-03
4-METHYL-2-PENTANONE	4.6E-05	6.5E-06	9.0E-05
ACETONE	ND	ND	ND
BENZENE	1.7E-05	3.9E-08	2.7E-04
CHLOROBENZENE	3.3E-04	4.6E-05	1.4E-03
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	2.6E-05	3.6E-06	1.5E-04
M,P-XYLENE	1.1E-04	1.5E-05	5.7E-04
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	4.6E-05	6.5E-06	2.0E-04
TETRACHLOROETHENE	1.7E-04	2.4E-05	2.1E-03
TOLUENE	4.1E-04	5.7E-05	4.1E-03
TRICHLOROETHENE	9.8E-05	1.4E-05	1.8E-03
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	1.5E-04	6.8E-05	4.6E-05
1,3-DICHLOROBENZENE	9.3E-06	4.3E-06	1.2E-05
1,4-DICHLOROBENZENE	3.2E-05	1.5E-05	3.4E-05
3,3'-DICHLOROBENZIDINE	5.9E-09	2.7E-09	4.2E-13
4-METHYLPHENOL	2.0E-07	9.3E-08	1.2E-09
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	4.6E-06	2.1E-06	3.5E-11
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	3.6E-06	1.7E-06	2.2E-07
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	4.0E-08	1.1E-08	2.9E-10
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	7.3E-07	1.1E-07	ND
BARIUM	1.1E-04	5.0E-06	ND
CADMIUM	5.9E-08	2.7E-09	ND
COPPER	9.8E-06	4.5E-07	ND
IRON	6.8E-03	3.2E-04	ND
LEAD	3.0E-05	1.4E-06	ND
MANGANESE	4.8E-05	2.2E-06	ND
MERCURY	ND	ND	ND
NICKEL	4.0E-05	1.9E-06	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	1.1E-04	5.2E-06	ND
TOTAL DOSE:	9.21E-03	5.98E-04	3.02E-02

ND = Not detected

**TABLE E - 15**  
**Noncarcinogenic Chronic Daily Intake**  
**Central Tendency Exposure by an On-Site Resident at BWA**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	1.4E-03	5.7E-07	3.6E-02
1,1-DICHLOROETHENE	8.3E-05	3.3E-08	6.2E-03
4-METHYL-2-PENTANONE	1.2E-04	3.0E-06	2.0E-04
ACETONE	ND	ND	ND
BENZENE	4.4E-05	1.8E-08	6.0E-04
CHLOROBENZENE	8.7E-04	2.1E-05	3.1E-03
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	6.9E-05	1.7E-06	3.3E-04
M,P-XYLENE	2.9E-04	6.9E-06	1.2E-03
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	1.2E-04	3.0E-06	4.3E-04
TETRACHLOROETHENE	4.6E-04	1.1E-05	4.5E-03
TOLUENE	1.1E-03	2.6E-05	8.9E-03
TRICHLOROETHENE	2.6E-04	6.3E-06	4.0E-03
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	3.9E-04	3.1E-05	1.0E-04
1,3-DICHLOROBENZENE	2.5E-05	2.0E-06	2.6E-05
1,4-DICHLOROBENZENE	8.5E-05	6.8E-06	7.5E-05
3,3'-DICHLOROBENZIDINE	1.6E-08	1.3E-09	9.1E-13
4-METHYLPHENOL	5.3E-07	4.3E-08	2.7E-09
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	1.2E-05	9.8E-07	7.7E-11
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	9.6E-06	7.7E-07	4.9E-07
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	1.1E-07	5.1E-09	6.3E-10
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	2.0E-06	5.0E-08	ND
BARIUM	2.9E-04	2.3E-06	ND
CADMIUM	1.6E-07	1.3E-09	ND
COPPER	2.6E-05	2.1E-07	ND
IRON	1.8E-02	1.5E-04	ND
LEAD	8.0E-05	6.4E-07	ND
MANGANESE	1.3E-04	1.0E-06	ND
MERCURY	ND	ND	ND
NICKEL	1.1E-04	8.6E-07	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	3.0E-04	2.4E-06	ND
TOTAL DOSE:	2.45E-02	2.75E-04	6.59E-02

ND = Not detected

**TABLE E - 16**  
**Noncarcinogenic Chronic Daily Intake**  
**Reasonable Maximum Exposure by an On-Site Resident at BWA**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	4.0E-03	2.0E-06	2.9E-02
1,1-DICHLOROETHENE	2.3E-04	1.1E-07	4.9E-03
4-METHYL-2-PENTANONE	3.5E-04	1.0E-05	1.6E-04
ACETONE	ND	ND	ND
BENZENE	1.2E-04	6.1E-08	4.8E-04
CHLOROBENZENE	2.4E-03	7.2E-05	2.5E-03
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	1.9E-04	5.7E-06	2.6E-04
M,P-XYLENE	8.0E-04	2.4E-05	9.9E-04
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	3.5E-04	1.0E-05	3.5E-04
TETRACHLOROETHENE	1.3E-03	3.7E-05	3.6E-03
TOLUENE	3.0E-03	8.9E-05	7.1E-03
TRICHLOROETHENE	7.3E-04	2.1E-05	3.2E-03
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	1.1E-03	1.1E-04	8.0E-05
1,3-DICHLOROBENZENE	6.9E-05	6.8E-06	2.1E-05
1,4-DICHLOROBENZENE	2.4E-04	2.3E-05	6.0E-05
3,3'-DICHLOROBENZIDINE	4.4E-08	4.3E-09	7.3E-13
4-METHYLPHENOL	1.5E-06	1.5E-07	2.1E-09
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	3.4E-05	3.4E-06	6.2E-11
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	2.7E-05	2.6E-06	3.9E-07
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	3.0E-07	1.8E-08	5.0E-10
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	5.5E-06	1.7E-07	ND
BARIUM	8.0E-04	7.8E-06	ND
CADMIUM	4.4E-07	4.3E-09	ND
COPPER	7.3E-05	7.1E-07	ND
IRON	5.1E-02	5.0E-04	ND
LEAD	2.2E-04	2.2E-06	ND
MANGANESE	3.6E-04	3.5E-06	ND
MERCURY	ND	ND	ND
NICKEL	3.0E-04	2.9E-06	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	8.4E-04	8.2E-06	ND
TOTAL DOSE:	6.88E-02	9.38E-04	5.27E-02

ND = Not detected

**TABLE E - 17**  
**Carcinogenic Chronic Daily Intake**  
**Central Tendency Exposure by an On-Site Industrial Worker at NDA**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	6.8E-04	1.4E-06	1.0E-02
1,1-DICHLOROETHENE	8.3E-07	1.7E-09	3.7E-05
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	4.6E-05	9.2E-08	6.2E-05
BENZENE	2.4E-05	4.8E-08	1.9E-04
CHLOROBENZENE	2.8E-03	3.4E-04	6.0E-03
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	9.7E-05	1.2E-05	2.8E-04
M,P-XYLENE	4.1E-04	4.9E-05	1.1E-03
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	1.7E-04	2.0E-05	3.5E-04
TETRACHLOROETHENE	1.2E-03	1.4E-04	6.9E-03
TOLUENE	2.4E-03	2.9E-04	1.2E-02
TRICHLOROETHENE	1.5E-04	1.8E-05	1.4E-03
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	2.5E-07	1.0E-07	3.9E-08
1,3-DICHLOROBENZENE	1.0E-05	4.2E-06	6.6E-06
1,4-DICHLOROBENZENE	6.3E-06	2.5E-06	3.3E-06
3,3'-DICHLOROBENZIDINE	2.5E-08	1.0E-08	4.6E-13
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	7.1E-07	2.9E-07	2.5E-08
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	1.6E-07	6.3E-08	4.8E-09
NITROBENZENE	4.2E-08	1.7E-08	8.3E-10
<b>III. PESTICIDES/ PCBs</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	1.0E-07	4.1E-09	ND
ARSENIC	ND	ND	ND
BARIUM	1.6E-06	6.3E-08	ND
CADMIUM	8.3E-08	3.3E-09	ND
COPPER	8.8E-07	3.5E-08	ND
IRON	2.5E-04	1.0E-05	ND
LEAD	1.2E-05	4.6E-07	ND
MANGANESE	3.6E-07	1.4E-08	ND
MERCURY	ND	ND	ND
NICKEL	2.5E-06	1.0E-07	ND
SELENIUM	ND	ND	ND
THALLIUM	5.5E-07	2.2E-08	ND
VANADIUM	3.0E-06	1.2E-07	ND
TOTAL DOSE:	8.26E-03	8.85E-04	3.85E-02

ND = Not detected

**TABLE E - 18**  
**Carcinogenic Chronic Daily Intake**  
**Reasonable Maximum Exposure by an On-Site Industrial Worker at NDA**

<u>CHEMICALS</u>	<u>INGEST SOIL</u>	<u>DERMAL CONTACT</u>	<u>INHALE VAPOR</u>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	1.1E-02	2.6E-05	7.7E-02
1,1-DICHLOROETHENE	1.4E-05	3.2E-08	2.8E-04
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	7.7E-04	1.8E-06	4.6E-04
BENZENE	4.0E-04	9.3E-07	1.5E-03
CHLOROBENZENE	4.7E-02	6.6E-03	4.5E-02
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	1.6E-03	2.3E-04	2.1E-03
M,P-XYLENE	6.8E-03	9.5E-04	7.9E-03
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	2.8E-03	3.9E-04	2.6E-03
TETRACHLOROETHENE	1.9E-02	2.7E-03	5.1E-02
TOLUENE	4.0E-02	5.6E-03	8.9E-02
TRICHLOROETHENE	2.4E-03	3.4E-04	1.0E-02
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	4.2E-06	1.9E-06	2.9E-07
1,3-DICHLOROBENZENE	1.7E-04	8.1E-05	4.9E-05
1,4-DICHLOROBENZENE	1.0E-04	4.9E-05	2.5E-05
3,3'-DICHLOROBENZIDINE	4.2E-07	1.9E-07	3.5E-12
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	1.2E-05	5.5E-06	1.9E-07
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	2.6E-06	1.2E-06	3.6E-08
NITROBENZENE	7.0E-07	3.2E-07	6.2E-09
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	1.7E-06	7.9E-08	ND
ARSENIC	ND	ND	ND
BARIUM	2.6E-05	1.2E-06	ND
CADMIUM	1.4E-06	6.4E-08	ND
COPPER	1.5E-05	6.8E-07	ND
IRON	4.2E-03	1.9E-04	ND
LEAD	1.9E-04	8.9E-06	ND
MANGANESE	5.9E-06	2.8E-07	ND
MERCURY	ND	ND	ND
NICKEL	4.2E-05	1.9E-06	ND
SELENIUM	ND	ND	ND
THALLIUM	9.1E-06	4.2E-07	ND
VANADIUM	5.1E-05	2.4E-06	ND
TOTAL DOSE:	1.38E-01	1.71E-02	2.87E-01

ND = Not detected

**TABLE E - 19**  
**Carcinogenic Chronic Daily Intake**  
**Central Tendency Exposure by an On-Site Resident at NDA**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	1.1E-02	4.4E-06	6.1E-02
1,1-DICHLOROETHENE	1.3E-05	5.3E-09	2.2E-04
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	7.4E-04	3.0E-07	3.6E-04
BENZENE	3.9E-04	1.5E-07	1.1E-03
CHLOROBENZENE	4.5E-02	1.1E-03	3.5E-02
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	1.6E-03	3.7E-05	1.6E-03
M,P-XYLENE	6.5E-03	1.6E-04	6.2E-03
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	2.7E-03	6.4E-05	2.1E-03
TETRACHLOROETHENE	1.8E-02	4.4E-04	4.0E-02
TOLUENE	3.9E-02	9.3E-04	7.0E-02
TRICHLOROETHENE	2.3E-03	5.6E-05	8.0E-03
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	4.0E-06	3.2E-07	2.3E-07
1,3-DICHLOROBENZENE	1.7E-04	1.3E-05	3.9E-05
1,4-DICHLOROBENZENE	1.0E-04	8.1E-06	2.0E-05
3,3'-DICHLOROBENZIDINE	4.0E-07	3.2E-08	2.7E-12
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	1.1E-05	9.1E-07	1.5E-07
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	2.5E-06	2.0E-07	2.8E-08
NITROBENZENE	6.7E-07	5.4E-08	4.9E-09
<b>III. PESTICIDES/ PCBs</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	1.6E-06	1.3E-08	ND
ARSENIC	ND	ND	ND
BARIUM	2.5E-05	2.0E-07	ND
CADMIUM	1.3E-06	1.1E-08	ND
COPPER	1.4E-05	1.1E-07	ND
IRON	4.0E-03	3.2E-05	ND
LEAD	1.8E-04	1.5E-06	ND
MANGANESE	5.7E-06	4.6E-08	ND
MERCURY	ND	ND	ND
NICKEL	4.0E-05	3.2E-07	ND
SELENIUM	ND	ND	ND
THALLIUM	8.7E-06	7.0E-08	ND
VANADIUM	4.9E-05	3.9E-07	ND
TOTAL DOSE:	1.32E-01	2.84E-03	2.25E-01

ND = Not detected

**TABLE E - 20**  
**Carcinogenic Chronic Daily Intake**  
**Reasonable Maximum Exposure by an On-Site Resident at NDA**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	1.0E-01	5.0E-05	1.6E-01
1,1-DICHLOROETHENE	1.2E-04	6.1E-08	5.8E-04
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	6.9E-03	3.4E-06	9.7E-04
BENZENE	3.6E-03	1.8E-06	3.0E-03
CHLOROBENZENE	4.2E-01	1.2E-02	9.4E-02
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	1.5E-02	4.3E-04	4.4E-03
M,P-XYLENE	6.1E-02	1.8E-03	1.7E-02
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	2.5E-02	7.3E-04	5.5E-03
TETRACHLOROETHENE	1.7E-01	5.0E-03	1.1E-01
TOLUENE	3.6E-01	1.1E-02	1.9E-01
TRICHLOROETHENE	2.2E-02	6.4E-04	2.1E-02
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	3.8E-05	3.7E-06	6.1E-07
1,3-DICHLOROBENZENE	1.6E-03	1.5E-04	1.0E-04
1,4-DICHLOROBENZENE	9.4E-04	9.2E-05	5.2E-05
3,3'-DICHLOROBENZIDINE	3.8E-06	3.7E-07	7.2E-12
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	1.1E-04	1.0E-05	4.0E-07
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	2.3E-05	2.3E-06	7.4E-08
NITROBENZENE	6.3E-06	6.1E-07	1.3E-08
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	1.5E-05	1.5E-07	ND
ARSENIC	ND	ND	ND
BARIUM	2.3E-04	2.3E-06	ND
CADMIUM	1.2E-05	1.2E-07	ND
COPPER	1.3E-04	1.3E-06	ND
IRON	3.8E-02	3.7E-04	ND
LEAD	1.7E-03	1.7E-05	ND
MANGANESE	5.3E-05	5.2E-07	ND
MERCURY	ND	ND	ND
NICKEL	3.8E-04	3.7E-06	ND
SELENIUM	ND	ND	ND
THALLIUM	8.1E-05	7.9E-07	ND
VANADIUM	4.5E-04	4.4E-06	ND
TOTAL DOSE:	1.23E+00	3.23E-02	6.00E-01

ND = Not detected

**TABLE E - 21**  
**Noncarcinogenic Chronic Daily Intake**  
**Central Tendency Exposure by an On-Site Industrial Worker at NDA**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	9.5E-03	1.9E-05	1.5E-01
1,1-DICHLOROETHENE	1.2E-05	2.3E-08	5.2E-04
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	6.5E-04	1.3E-06	8.7E-04
BENZENE	3.4E-04	6.8E-07	2.7E-03
CHLOROBENZENE	4.0E-02	4.8E-03	8.4E-02
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	1.4E-03	1.6E-04	3.9E-03
M,P-XYLENE	5.7E-03	6.9E-04	1.5E-02
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	2.3E-03	2.8E-04	4.9E-03
TETRACHLOROETHENE	1.6E-02	1.9E-03	9.6E-02
TOLUENE	3.4E-02	4.1E-03	1.7E-01
TRICHLOROETHENE	2.1E-03	2.5E-04	1.9E-02
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	3.5E-06	1.4E-06	5.4E-07
1,3-DICHLOROBENZENE	1.5E-04	5.9E-05	9.3E-05
1,4-DICHLOROBENZENE	8.8E-05	3.5E-05	4.7E-05
3,3'-DICHLOROBENZIDINE	3.5E-07	1.4E-07	6.5E-12
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	1.0E-05	4.0E-06	3.6E-07
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	2.2E-06	8.8E-07	6.7E-08
NITROBENZENE	5.9E-07	2.3E-07	1.2E-08
<b>III. PESTICIDES/PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	1.4E-06	5.7E-08	ND
ARSENIC	ND	ND	ND
BARIUM	2.2E-05	8.8E-07	ND
CADMIUM	1.2E-06	4.6E-08	ND
COPPER	1.2E-05	4.9E-07	ND
IRON	3.5E-03	1.4E-04	ND
LEAD	1.6E-04	6.5E-06	ND
MANGANESE	5.0E-06	2.0E-07	ND
MERCURY	ND	ND	ND
NICKEL	3.5E-05	1.4E-06	ND
SELENIUM	ND	ND	ND
THALLIUM	7.6E-06	3.1E-07	ND
VANADIUM	4.3E-05	1.7E-06	ND
TOTAL DOSE:	1.16E-01	1.24E-02	5.38E-01

ND = Not detected

**TABLE E - 22**  
**Noncarcinogenic Chronic Daily Intake**  
**Reasonable Maximum Exposure by an On-Site Industrial Worker at NDA**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	3.2E-02	7.4E-05	2.2E-01
1,1-DICHLOROETHENE	3.9E-05	9.0E-08	7.7E-04
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	2.2E-03	5.0E-06	1.3E-03
BENZENE	1.1E-03	2.6E-06	4.1E-03
CHLOROBENZENE	1.3E-01	1.8E-02	1.3E-01
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	4.5E-03	6.3E-04	5.9E-03
M,P-XYLENE	1.9E-02	2.7E-03	2.2E-02
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	7.8E-03	1.1E-03	7.4E-03
TETRACHLOROETHENE	5.4E-02	7.5E-03	1.4E-01
TOLUENE	1.1E-01	1.6E-02	2.5E-01
TRICHLOROETHENE	6.8E-03	9.5E-04	2.8E-02
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	1.2E-05	5.4E-06	8.1E-07
1,3-DICHLOROBENZENE	4.9E-04	2.3E-04	1.4E-04
1,4-DICHLOROBENZENE	2.9E-04	1.4E-04	7.0E-05
3,3'-DICHLOROBENZIDINE	1.2E-06	5.4E-07	9.7E-12
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	3.3E-05	1.5E-05	5.3E-07
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	7.3E-06	3.4E-06	1.0E-07
NITROBENZENE	2.0E-06	9.1E-07	1.7E-08
<b>III. PESTICIDES/ PCBs</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	4.7E-06	2.2E-07	ND
ARSENIC	ND	ND	ND
BARIUM	7.3E-05	3.4E-06	ND
CADMIUM	3.9E-06	1.8E-07	ND
COPPER	4.1E-05	1.9E-06	ND
IRON	1.2E-02	5.4E-04	ND
LEAD	5.4E-04	2.5E-05	ND
MANGANESE	1.7E-05	7.7E-07	ND
MERCURY	ND	ND	ND
NICKEL	1.2E-04	5.4E-06	ND
SELENIUM	ND	ND	ND
THALLIUM	2.5E-05	1.2E-06	ND
VANADIUM	1.4E-04	6.6E-06	ND
TOTAL DOSE:	3.85E-01	4.79E-02	8.03E-01

ND = Not detected

**TABLE E - 23**  
**Noncarcinogenic Chronic Daily Intake**  
**Central Tendency Exposure by an On-Site Resident at NDA**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	8.5E-02	3.4E-05	4.7E-01
1,1-DICHLOROETHENE	1.0E-04	4.2E-08	1.7E-03
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	5.7E-03	2.3E-06	2.8E-03
BENZENE	3.0E-03	1.2E-06	8.9E-03
CHLOROBENZENE	3.5E-01	8.5E-03	2.7E-01
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	1.2E-02	2.9E-04	1.3E-02
M,P-XYLENE	5.1E-02	1.2E-03	4.9E-02
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	2.1E-02	5.0E-04	1.6E-02
TETRACHLOROETHENE	1.4E-01	3.4E-03	3.1E-01
TOLUENE	3.0E-01	7.2E-03	5.4E-01
TRICHLOROETHENE	1.8E-02	4.4E-04	6.2E-02
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	3.1E-05	2.5E-06	1.8E-06
1,3-DICHLOROBENZENE	1.3E-03	1.0E-04	3.0E-04
1,4-DICHLOROBENZENE	7.8E-04	6.3E-05	1.5E-04
3,3'-DICHLOROBENZIDINE	3.1E-06	2.5E-07	2.1E-11
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	8.9E-05	7.1E-06	1.2E-06
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	2.0E-05	1.6E-06	2.2E-07
NITROBENZENE	5.2E-06	4.2E-07	3.8E-08
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	1.3E-05	1.0E-07	ND
ARSENIC	ND	ND	ND
BARIUM	2.0E-04	1.6E-06	ND
CADMIUM	1.0E-05	8.2E-08	ND
COPPER	1.1E-04	8.8E-07	ND
IRON	3.1E-02	2.5E-04	ND
LEAD	1.4E-03	1.1E-05	ND
MANGANESE	4.4E-05	3.6E-07	ND
MERCURY	ND	ND	ND
NICKEL	3.1E-04	2.5E-06	ND
SELENIUM	ND	ND	ND
THALLIUM	6.8E-05	5.4E-07	ND
VANADIUM	3.8E-04	3.0E-06	ND
TOTAL DOSE:	1.03E+00	2.21E-02	1.75E+00

ND = Not detected

**TABLE E - 24**  
**Noncarcinogenic Chronic Daily Intake**  
**Reasonable Maximum Exposure by an On-Site Resident at NDA**

<u>CHEMICALS</u>	<u>INGEST SOIL</u>	<u>DERMAL CONTACT</u>	<u>INHALE VAPOR</u>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	2.4E-01	1.2E-04	3.8E-01
1,1-DICHLOROETHENE	2.9E-04	1.4E-07	1.4E-03
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	1.6E-02	7.8E-06	2.3E-03
BENZENE	8.4E-03	4.1E-06	7.1E-03
CHLOROBENZENE	9.9E-01	2.9E-02	2.2E-01
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	3.4E-02	9.9E-04	1.0E-02
M,P-XYLENE	1.4E-01	4.2E-03	3.9E-02
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	5.8E-02	1.7E-03	1.3E-02
TETRACHLOROETHENE	4.0E-01	1.2E-02	2.5E-01
TOLUENE	8.4E-01	2.5E-02	4.3E-01
TRICHLOROETHENE	5.1E-02	1.5E-03	4.9E-02
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	8.8E-05	8.6E-06	1.4E-06
1,3-DICHLOROBENZENE	3.7E-03	3.6E-04	2.4E-04
1,4-DICHLOROBENZENE	2.2E-03	2.1E-04	1.2E-04
3,3'-DICHLOROBENZIDINE	8.8E-06	8.6E-07	1.7E-11
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	2.5E-04	2.4E-05	9.2E-07
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	5.5E-05	5.3E-06	1.7E-07
NITROBENZENE	1.5E-05	1.4E-06	3.0E-08
<b>III. PESTICIDES/ PCBs</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	3.5E-05	3.5E-07	ND
ARSENIC	ND	ND	ND
BARIUM	5.5E-04	5.3E-06	ND
CADMIUM	2.9E-05	2.8E-07	ND
COPPER	3.1E-04	3.0E-06	ND
IRON	8.8E-02	8.6E-04	ND
LEAD	4.0E-03	3.9E-05	ND
MANGANESE	1.2E-04	1.2E-06	ND
MERCURY	ND	ND	ND
NICKEL	8.8E-04	8.6E-06	ND
SELENIUM	ND	ND	ND
THALLIUM	1.9E-04	1.9E-06	ND
VANADIUM	1.1E-03	1.0E-05	ND
TOTAL DOSE:	2.88E+00	7.53E-02	1.40E+00

ND = Not detected

**TABLE E - 25**  
**Carcinogenic Chronic Daily Intake**  
**Central Tendency Exposure by an On-Site Industrial Worker at POND01**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	2.1E-08	4.2E-11	1.9E-06
1,1-DICHLOROETHENE	1.9E-09	3.8E-12	5.0E-07
4-METHYL-2-PENTANONE	7.8E-08	9.3E-09	4.4E-07
ACETONE	ND	ND	ND
BENZENE	2.0E-09	4.0E-12	9.7E-08
CHLOROBENZENE	5.0E-08	6.0E-09	6.4E-07
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	1.5E-09	1.8E-10	2.5E-08
M,P-XYLENE	2.1E-11	2.5E-12	3.3E-10
METHYLENE CHLORIDE	2.9E-09	5.9E-12	2.1E-07
O-XYLENE	3.1E-09	3.8E-10	4.0E-08
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	9.2E-08	1.1E-08	2.7E-06
TRICHLOROETHENE	3.5E-10	4.2E-11	1.9E-08
VINYL CHLORIDE	1.7E-09	3.4E-12	1.0E-06
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	1.7E-10	6.7E-11	1.6E-10
1,3-DICHLOROBENZENE	3.6E-10	1.4E-10	1.4E-09
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	4.9E-10	2.0E-10	6.5E-12
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	3.9E-08	1.6E-08	5.0E-13
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBs</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	3.5E-08	4.4E-09	ND
BARIUM	1.8E-06	7.1E-08	ND
CADMIUM	4.2E-09	1.7E-10	ND
COPPER	1.3E-07	5.1E-09	ND
IRON	1.5E-04	5.9E-06	ND
LEAD	6.8E-07	2.7E-08	ND
MANGANESE	6.0E-07	2.4E-08	ND
MERCURY	ND	ND	ND
NICKEL	3.4E-08	1.3E-09	ND
SELENIUM	1.0E-08	4.0E-10	ND
THALLIUM	ND	ND	ND
VANADIUM	2.3E-06	9.2E-08	ND
TOTAL DOSE:	1.53E-04	6.14E-06	7.66E-06

ND = Not detected

**TABLE E - 26**  
**Carcinogenic Chronic Daily Intake**  
**Reasonable Maximum Exposure by an On-Site Industrial Worker at POND01**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	3.5E-07	8.1E-10	1.4E-05
1,1-DICHLOROETHENE	3.1E-08	7.3E-11	3.8E-06
4-METHYL-2-PENTANONE	1.3E-06	1.8E-07	3.3E-06
ACETONE	ND	ND	ND
BENZENE	3.3E-08	7.7E-11	7.2E-07
CHLOROBENZENE	8.4E-07	1.2E-07	4.8E-06
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	2.4E-08	3.4E-09	1.9E-07
M,P-XYLENE	3.5E-10	4.9E-11	2.4E-09
METHYLENE CHLORIDE	4.9E-08	1.1E-10	1.5E-06
O-XYLENE	5.2E-08	7.3E-09	3.0E-07
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	1.5E-06	2.1E-07	2.0E-05
TRICHLOROETHENE	5.8E-09	8.0E-10	1.4E-07
VINYL CHLORIDE	2.8E-08	6.5E-11	7.8E-06
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	2.8E-09	1.3E-09	1.2E-09
1,3-DICHLOROBENZENE	5.9E-09	2.8E-09	1.0E-08
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	8.2E-09	3.8E-09	4.8E-11
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	6.5E-07	3.0E-07	3.7E-12
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	5.8E-07	8.6E-08	ND
BARIUM	3.0E-05	1.4E-06	ND
CADMIUM	7.0E-08	3.2E-09	ND
COPPER	2.1E-06	9.9E-08	ND
IRON	2.4E-03	1.1E-04	ND
LEAD	1.1E-05	5.3E-07	ND
MANGANESE	1.0E-05	4.6E-07	ND
MERCURY	ND	ND	ND
NICKEL	5.6E-07	2.6E-08	ND
SELENIUM	1.7E-07	7.7E-09	ND
THALLIUM	ND	ND	ND
VANADIUM	3.8E-05	1.8E-06	ND
<b>TOTAL DOSE:</b>	<b>2.54E-03</b>	<b>1.19E-04</b>	<b>5.71E-05</b>

ND = Not detected

**TABLE E - 27**  
**Carcinogenic Chronic Daily Intake**  
**Central Tendency Exposure by an On-Site Resident at POND01**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	3.4E-07	1.3E-10	1.1E-05
1,1-DICHLOROETHENE	3.0E-08	1.2E-11	3.0E-06
4-METHYL-2-PENTANONE	1.2E-06	3.0E-08	2.6E-06
ACETONE	ND	ND	ND
BENZENE	3.2E-08	1.3E-11	5.7E-07
CHLOROBENZENE	8.0E-07	1.9E-08	3.7E-06
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	2.3E-08	5.6E-10	1.5E-07
M,P-XYLENE	3.4E-10	8.1E-12	1.9E-09
METHYLENE CHLORIDE	4.7E-08	1.9E-11	1.2E-06
O-XYLENE	5.0E-08	1.2E-09	2.3E-07
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	1.5E-06	3.5E-08	1.6E-05
TRICHLOROETHENE	5.5E-09	1.3E-10	1.1E-07
VINYL CHLORIDE	2.7E-08	1.1E-11	6.1E-06
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	2.7E-09	2.1E-10	9.1E-10
1,3-DICHLOROBENZENE	5.7E-09	4.6E-10	7.9E-09
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	7.9E-09	6.3E-10	3.8E-11
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	6.2E-07	5.0E-08	2.9E-12
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBs</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	5.5E-07	1.4E-08	ND
BARIUM	2.8E-05	2.3E-07	ND
CADMIUM	6.7E-08	5.4E-10	ND
COPPER	2.0E-06	1.6E-08	ND
IRON	2.3E-03	1.9E-05	ND
LEAD	1.1E-05	8.7E-08	ND
MANGANESE	9.6E-06	7.7E-08	ND
MERCURY	ND	ND	ND
NICKEL	5.4E-07	4.3E-09	ND
SELENIUM	1.6E-07	1.3E-09	ND
THALLIUM	ND	ND	ND
VANADIUM	3.7E-05	3.0E-07	ND
TOTAL DOSE:	2.44E-03	1.97E-05	4.49E-05

ND = Not detected

**TABLE E - 28**  
**Carcinogenic Chronic Daily Intake**  
**Reasonable Maximum Exposure by an On-Site Resident at POND01**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	3.1E-06	1.5E-09	3.0E-05
1,1-DICHLOROETHENE	2.8E-07	1.4E-10	7.9E-06
4-METHYL-2-PENTANONE	1.2E-05	3.4E-07	6.9E-06
ACETONE	ND	ND	ND
BENZENE	3.0E-07	1.5E-10	1.5E-06
CHLOROBENZENE	7.5E-06	2.2E-07	1.0E-05
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	2.2E-07	6.4E-09	4.0E-07
M,P-XYLENE	3.1E-09	9.2E-11	5.1E-09
METHYLENE CHLORIDE	4.4E-07	2.1E-10	3.2E-06
O-XYLENE	4.7E-07	1.4E-08	6.2E-07
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	1.4E-05	4.0E-07	4.3E-05
TRICHLOROETHENE	5.2E-08	1.5E-09	3.0E-07
VINYL CHLORIDE	2.5E-07	1.2E-10	1.6E-05
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	2.5E-08	2.4E-09	2.4E-09
1,3-DICHLOROBENZENE	5.3E-08	5.2E-09	2.1E-08
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	7.4E-08	7.2E-09	1.0E-10
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	5.8E-06	5.7E-07	7.7E-12
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	5.2E-06	1.6E-07	ND
BARIUM	2.7E-04	2.6E-06	ND
CADMIUM	6.3E-07	6.1E-09	ND
COPPER	1.9E-05	1.9E-07	ND
IRON	2.2E-02	2.1E-04	ND
LEAD	1.0E-04	9.9E-07	ND
MANGANESE	8.9E-05	8.7E-07	ND
MERCURY	ND	ND	ND
NICKEL	5.0E-06	4.9E-08	ND
SELENIUM	1.5E-06	1.5E-08	ND
THALLIUM	ND	ND	ND
VANADIUM	3.4E-04	3.4E-06	ND
TOTAL DOSE:	2.28E-02	2.24E-04	1.20E-04

ND = Not detected

**TABLE E - 29**  
**Noncarcinogenic Chronic Daily Intake**  
**Central Tendency Exposure by an On-Site Industrial Worker at POND01**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	2.9E-07	5.9E-10	2.7E-05
1,1-DICHLOROETHENE	2.6E-08	5.3E-11	7.1E-06
4-METHYL-2-PENTANONE	1.1E-06	1.3E-07	6.2E-06
ACETONE	ND	ND	ND
BENZENE	2.8E-08	5.6E-11	1.4E-06
CHLOROBENZENE	7.0E-07	8.5E-08	9.0E-06
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	2.1E-08	2.5E-09	3.6E-07
M,P-XYLENE	2.9E-10	3.5E-11	4.6E-09
METHYLENE CHLORIDE	4.1E-08	8.2E-11	2.9E-06
O-XYLENE	4.4E-08	5.3E-09	5.6E-07
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	1.3E-06	1.5E-07	3.8E-05
TRICHLOROETHENE	4.8E-09	5.8E-10	2.7E-07
VINYL CHLORIDE	2.3E-08	4.7E-11	1.5E-05
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	2.3E-09	9.4E-10	2.2E-09
1,3-DICHLOROBENZENE	5.0E-09	2.0E-09	1.9E-08
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	6.9E-09	2.8E-09	9.0E-11
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	5.4E-07	2.2E-07	6.9E-12
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBs</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	4.8E-07	6.2E-08	ND
BARIUM	2.5E-05	1.0E-06	ND
CADMIUM	5.9E-08	2.3E-09	ND
COPPER	1.8E-06	7.2E-08	ND
IRON	2.1E-03	8.2E-05	ND
LEAD	9.5E-06	3.8E-07	ND
MANGANESE	8.4E-06	3.3E-07	ND
MERCURY	ND	ND	ND
NICKEL	4.7E-07	1.9E-08	ND
SELENIUM	1.4E-07	5.6E-09	ND
THALLIUM	ND	ND	ND
VANADIUM	3.2E-05	1.3E-06	ND
TOTAL DOSE:	2.14E-03	8.60E-05	1.07E-04

ND = Not detected

**TABLE E - 30**  
**Noncarcinogenic Chronic Daily Intake**  
**Reasonable Maximum Exposure by an On-Site Industrial Worker at POND01**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	9.8E-07	2.3E-09	4.0E-05
1,1-DICHLOROETHENE	8.8E-08	2.0E-10	1.1E-05
4-METHYL-2-PENTANONE	3.6E-06	5.0E-07	9.3E-06
ACETONE	ND	ND	ND
BENZENE	9.3E-08	2.2E-10	2.0E-06
CHLOROBENZENE	2.3E-06	3.3E-07	1.3E-05
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	6.8E-08	9.5E-09	5.3E-07
M,P-XYLENE	9.8E-10	1.4E-10	6.8E-09
METHYLENE CHLORIDE	1.4E-07	3.2E-10	4.3E-06
O-XYLENE	1.5E-07	2.0E-08	8.3E-07
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	4.3E-06	6.0E-07	5.7E-05
TRICHLOROETHENE	1.6E-08	2.2E-09	4.0E-07
VINYL CHLORIDE	7.8E-08	1.8E-10	2.2E-05
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	7.8E-09	3.6E-09	3.2E-09
1,3-DICHLOROBENZENE	1.7E-08	7.7E-09	2.8E-08
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	2.3E-08	1.1E-08	1.3E-10
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	1.8E-06	8.4E-07	1.0E-11
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	1.6E-06	2.4E-07	ND
BARIUM	8.3E-05	3.9E-06	ND
CADMIUM	2.0E-07	9.1E-09	ND
COPPER	6.0E-06	2.8E-07	ND
IRON	6.8E-03	3.2E-04	ND
LEAD	3.2E-05	1.5E-06	ND
MANGANESE	2.8E-05	1.3E-06	ND
MERCURY	ND	ND	ND
NICKEL	1.6E-06	7.3E-08	ND
SELENIUM	4.6E-07	2.2E-08	ND
THALLIUM	ND	ND	ND
VANADIUM	1.1E-04	5.0E-06	ND
TOTAL DOSE:	7.12E-03	3.32E-04	1.60E-04

ND = Not detected

**TABLE E - 31**  
**Noncarcinogenic Chronic Daily Intake**  
**Central Tendency Exposure by an On-Site Resident at POND01**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	2.6E-06	1.0E-09	8.7E-05
1,1-DICHLOROETHENE	2.3E-07	9.4E-11	2.3E-05
4-METHYL-2-PENTANONE	9.6E-06	2.3E-07	2.0E-05
ACETONE	ND	ND	ND
BENZENE	2.5E-07	9.9E-11	4.4E-06
CHLOROBENZENE	6.3E-06	1.5E-07	2.9E-05
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	1.8E-07	4.4E-09	1.2E-06
M,P-XYLENE	2.6E-09	6.3E-11	1.5E-08
METHYLENE CHLORIDE	3.6E-07	1.5E-10	9.4E-06
O-XYLENE	3.9E-07	9.4E-09	1.8E-06
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	1.1E-05	2.8E-07	1.2E-04
TRICHLOROETHENE	4.3E-08	1.0E-09	8.8E-07
VINYL CHLORIDE	2.1E-07	8.4E-11	4.7E-05
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	2.1E-08	1.7E-09	7.1E-09
1,3-DICHLOROBENZENE	4.4E-08	3.6E-09	6.2E-08
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	6.1E-08	4.9E-09	2.9E-10
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	4.8E-06	3.9E-07	2.3E-11
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBs</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	4.3E-06	1.1E-07	ND
BARIUM	2.2E-04	1.8E-06	ND
CADMIUM	5.2E-07	4.2E-09	ND
COPPER	1.6E-05	1.3E-07	ND
IRON	1.8E-02	1.5E-04	ND
LEAD	8.5E-05	6.8E-07	ND
MANGANESE	7.4E-05	6.0E-07	ND
MERCURY	ND	ND	ND
NICKEL	4.2E-06	3.3E-08	ND
SELENIUM	1.2E-06	9.9E-09	ND
THALLIUM	ND	ND	ND
VANADIUM	2.9E-04	2.3E-06	ND
TOTAL DOSE:	1.90E-02	1.53E-04	3.49E-04

ND = Not detected

**TABLE E - 32**  
**Noncarcinogenic Chronic Daily Intake**  
**Reasonable Maximum Exposure by an On-Site Resident at POND01**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	7.3E-06	3.6E-09	7.0E-05
1,1-DICHLOROETHENE	6.6E-07	3.2E-10	1.8E-05
4-METHYL-2-PENTANONE	2.7E-05	7.9E-07	1.6E-05
ACETONE	ND	ND	ND
BENZENE	6.9E-07	3.4E-10	3.5E-06
CHLOROBENZENE	1.8E-05	5.1E-07	2.3E-05
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	5.1E-07	1.5E-08	9.2E-07
M,P-XYLENE	7.3E-09	2.1E-10	1.2E-08
METHYLENE CHLORIDE	1.0E-06	5.0E-10	7.5E-06
O-XYLENE	1.1E-06	3.2E-08	1.4E-06
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	3.2E-05	9.4E-07	9.9E-05
TRICHLOROETHENE	1.2E-07	3.5E-09	7.0E-07
VINYL CHLORIDE	5.8E-07	2.9E-10	3.8E-05
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	5.8E-08	5.7E-09	5.7E-09
1,3-DICHLOROBENZENE	1.2E-07	1.2E-08	4.9E-08
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	1.7E-07	1.7E-08	2.4E-10
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	1.4E-05	1.3E-06	1.8E-11
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBs</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	1.2E-05	3.8E-07	ND
BARIUM	6.2E-04	6.1E-06	ND
CADMIUM	1.5E-06	1.4E-08	ND
COPPER	4.5E-05	4.3E-07	ND
IRON	5.1E-02	5.0E-04	ND
LEAD	2.4E-04	2.3E-06	ND
MANGANESE	2.1E-04	2.0E-06	ND
MERCURY	ND	ND	ND
NICKEL	1.2E-05	1.1E-07	ND
SELENIUM	3.5E-06	3.4E-08	ND
THALLIUM	ND	ND	ND
VANADIUM	8.0E-04	7.8E-06	ND
TOTAL DOSE:	5.32E-02	5.22E-04	2.79E-04

ND = Not detected

**TABLE E - 33**  
**Carcinogenic Chronic Daily Intake**  
**Central Tendency Exposure by an On-Site Industrial Worker at POND02**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	1.5E-06	2.9E-09	1.2E-04
1,1-DICHLOROETHENE	1.3E-07	2.5E-10	3.0E-05
4-METHYL-2-PENTANONE	4.0E-07	4.8E-08	2.0E-06
ACETONE	2.8E-06	5.7E-09	2.0E-05
BENZENE	3.7E-07	7.3E-10	1.6E-05
CHLOROBENZENE	4.1E-06	4.9E-07	4.6E-05
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	1.0E-06	1.3E-07	1.6E-05
M,P-XYLENE	6.1E-06	7.3E-07	8.4E-05
METHYLENE CHLORIDE	5.8E-06	1.2E-08	3.6E-04
O-XYLENE	3.1E-06	3.8E-07	3.5E-05
TETRACHLOROETHENE	6.6E-06	7.9E-07	2.1E-04
TOLUENE	2.1E-06	2.5E-07	5.5E-05
TRICHLOROETHENE	1.0E-06	1.2E-07	4.9E-05
VINYL CHLORIDE	1.0E-08	2.0E-11	5.6E-06
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	6.3E-09	2.5E-09	5.2E-09
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	6.8E-07	2.7E-07	1.9E-06
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	2.1E-07	8.4E-08	2.4E-09
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	2.1E-06	8.4E-07	2.3E-11
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	1.3E-07	5.0E-08	2.0E-08
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBs</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	4.0E-08	1.6E-09	ND
ARSENIC	ND	ND	ND
BARIUM	1.8E-06	7.3E-08	ND
CADMIUM	7.5E-08	3.0E-09	ND
COPPER	1.3E-07	5.1E-09	ND
IRON	2.0E-04	7.9E-06	ND
LEAD	1.3E-06	5.0E-08	ND
MANGANESE	7.9E-07	3.1E-08	ND
MERCURY	ND	ND	ND
NICKEL	7.8E-07	3.1E-08	ND
SELENIUM	ND	ND	ND
THALLIUM	1.4E-07	5.7E-09	ND
VANADIUM	2.0E-06	8.1E-08	ND
TOTAL DOSE:	2.43E-04	1.24E-05	1.04E-03

ND = Not detected

**TABLE E - 34**  
**Carcinogenic Chronic Daily Intake**  
**Reasonable Maximum Exposure by an On-Site Industrial Worker at POND02**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	2.4E-05	5.7E-08	8.8E-04
1,1-DICHLOROETHENE	2.1E-06	4.9E-09	2.2E-04
4-METHYL-2-PENTANONE	6.6E-06	9.2E-07	1.5E-05
ACETONE	4.7E-05	1.1E-07	1.5E-04
BENZENE	6.1E-06	1.4E-08	1.2E-04
CHLOROBENZENE	6.8E-05	9.5E-06	3.4E-04
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	1.7E-05	2.4E-06	1.2E-04
M,P-XYLENE	1.0E-04	1.4E-05	6.3E-04
METHYLENE CHLORIDE	9.6E-05	2.2E-07	2.7E-03
O-XYLENE	5.2E-05	7.3E-06	2.6E-04
TETRACHLOROETHENE	1.1E-04	1.5E-05	1.6E-03
TOLUENE	3.5E-05	4.9E-06	4.1E-04
TRICHLOROETHENE	1.7E-05	2.3E-06	3.6E-04
VINYL CHLORIDE	1.7E-07	3.9E-10	4.2E-05
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	1.0E-07	4.9E-08	3.8E-08
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	1.1E-05	5.3E-06	1.4E-05
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	3.5E-06	1.6E-06	1.8E-08
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	3.5E-05	1.6E-05	1.7E-10
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	2.1E-06	9.7E-07	1.5E-07
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBs</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	6.7E-07	3.1E-08	ND
ARSENIC	ND	ND	ND
BARIUM	3.0E-05	1.4E-06	ND
CADMIUM	1.2E-06	5.8E-08	ND
COPPER	2.1E-06	9.8E-08	ND
IRON	3.3E-03	1.5E-04	ND
LEAD	2.1E-05	9.7E-07	ND
MANGANESE	1.3E-05	6.1E-07	ND
MERCURY	ND	ND	ND
NICKEL	1.3E-05	6.0E-07	ND
SELENIUM	ND	ND	ND
THALLIUM	2.4E-06	1.1E-07	ND
VANADIUM	3.4E-05	1.6E-06	ND
TOTAL DOSE:	4.06E-03	2.40E-04	7.78E-03

ND = Not detected

**TABLE E - 35**  
**Carcinogenic Chronic Daily Intake**  
**Central Tendency Exposure by an On-Site Resident at POND02**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	2.3E-05	9.4E-09	6.9E-04
1,1-DICHLOROETHENE	2.0E-06	8.1E-10	1.7E-04
4-METHYL-2-PENTANONE	6.4E-06	1.5E-07	1.2E-05
ACETONE	4.5E-05	1.8E-08	1.2E-04
BENZENE	5.9E-06	2.3E-09	9.2E-05
CHLOROBENZENE	6.5E-05	1.6E-06	2.7E-04
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	1.7E-05	4.0E-07	9.4E-05
M,P-XYLENE	9.7E-05	2.3E-06	4.9E-04
METHYLENE CHLORIDE	9.2E-05	3.7E-08	2.1E-03
O-XYLENE	5.0E-05	1.2E-06	2.1E-04
TETRACHLOROETHENE	1.1E-04	2.5E-06	1.2E-03
TOLUENE	3.4E-05	8.1E-07	3.2E-04
TRICHLOROETHENE	1.6E-05	3.8E-07	2.9E-04
VINYL CHLORIDE	1.6E-07	6.5E-11	3.3E-05
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	1.0E-07	8.1E-09	3.0E-08
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	1.1E-05	8.7E-07	1.1E-05
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	3.4E-06	2.7E-07	1.4E-08
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	3.4E-05	2.7E-06	1.4E-10
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	2.0E-06	1.6E-07	1.2E-07
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBs</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	6.4E-07	5.1E-09	ND
ARSENIC	ND	ND	ND
BARIUM	2.9E-05	2.3E-07	ND
CADMIUM	1.2E-06	9.6E-09	ND
COPPER	2.0E-06	1.6E-08	ND
IRON	3.2E-03	2.5E-05	ND
LEAD	2.0E-05	1.6E-07	ND
MANGANESE	1.3E-05	1.0E-07	ND
MERCURY	ND	ND	ND
NICKEL	1.2E-05	1.0E-07	ND
SELENIUM	ND	ND	ND
THALLIUM	2.3E-06	1.8E-08	ND
VANADIUM	3.2E-05	2.6E-07	ND
TOTAL DOSE:	3.89E-03	3.98E-05	6.12E-03

ND = Not detected

**TABLE E - 36**  
**Carcinogenic Chronic Daily Intake**  
**Reasonable Maximum Exposure by an On-Site Resident at POND02**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	2.2E-04	1.1E-07	1.8E-03
1,1-DICHLOROETHENE	1.9E-05	9.2E-09	4.6E-04
4-METHYL-2-PENTANONE	5.9E-05	1.7E-06	3.1E-05
ACETONE	4.2E-04	2.1E-07	3.2E-04
BENZENE	5.5E-05	2.7E-08	2.5E-04
CHLOROBENZENE	6.1E-04	1.8E-05	7.2E-04
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	1.6E-04	4.6E-06	2.5E-04
M,P-XYLENE	9.1E-04	2.7E-05	1.3E-03
METHYLENE CHLORIDE	8.6E-04	4.2E-07	5.6E-03
O-XYLENE	4.7E-04	1.4E-05	5.5E-04
TETRACHLOROETHENE	9.9E-04	2.9E-05	3.2E-03
TOLUENE	3.1E-04	9.2E-06	8.6E-04
TRICHLOROETHENE	1.5E-04	4.4E-06	7.6E-04
VINYL CHLORIDE	1.5E-06	7.4E-10	8.7E-05
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	9.4E-07	9.2E-08	8.1E-08
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	1.0E-04	9.9E-06	3.0E-05
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	3.1E-05	3.1E-06	3.8E-08
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	3.1E-04	3.1E-05	3.6E-10
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	1.9E-05	1.8E-06	3.2E-07
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	6.0E-06	5.8E-08	ND
ARSENIC	ND	ND	ND
BARIUM	2.7E-04	2.7E-06	ND
CADMIUM	1.1E-05	1.1E-07	ND
COPPER	1.9E-05	1.8E-07	ND
IRON	3.0E-02	2.9E-04	ND
LEAD	1.9E-04	1.8E-06	ND
MANGANESE	1.2E-04	1.1E-06	ND
MERCURY	ND	ND	ND
NICKEL	1.2E-04	1.1E-06	ND
SELENIUM	ND	ND	ND
THALLIUM	2.1E-05	2.1E-07	ND
VANADIUM	3.0E-04	2.9E-06	ND
TOTAL DOSE:	3.64E-02	4.52E-04	1.63E-02

ND = Not detected

**TABLE E - 37**  
**Noncarcinogenic Chronic Daily Intake**  
**Central Tendency Exposure by an On-Site Industrial Worker at POND02**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	2.1E-05	4.1E-08	1.7E-03
1,1-DICHLOROETHENE	1.8E-06	3.5E-09	4.2E-04
4-METHYL-2-PENTANONE	5.6E-06	6.7E-07	2.8E-05
ACETONE	4.0E-05	7.9E-08	2.8E-04
BENZENE	5.1E-06	1.0E-08	2.2E-04
CHLOROBENZENE	5.7E-05	6.9E-06	6.4E-04
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	1.5E-05	1.8E-06	2.2E-04
M,P-XYLENE	8.5E-05	1.0E-05	1.2E-03
METHYLENE CHLORIDE	8.1E-05	1.6E-07	5.0E-03
O-XYLENE	4.4E-05	5.3E-06	4.9E-04
TETRACHLOROETHENE	9.2E-05	1.1E-05	2.9E-03
TOLUENE	2.9E-05	3.5E-06	7.7E-04
TRICHLOROETHENE	1.4E-05	1.7E-06	6.8E-04
VINYL CHLORIDE	1.4E-07	2.8E-10	7.8E-05
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	8.8E-08	3.5E-08	7.2E-08
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	9.5E-06	3.8E-06	2.7E-05
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	2.9E-06	1.2E-06	3.4E-08
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	2.9E-05	1.2E-05	3.3E-10
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	1.8E-06	7.0E-07	2.8E-07
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBs</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	5.6E-07	2.2E-08	ND
ARSENIC	ND	ND	ND
BARIUM	2.6E-05	1.0E-06	ND
CADMIUM	1.0E-06	4.2E-08	ND
COPPER	1.8E-06	7.1E-08	ND
IRON	2.8E-03	1.1E-04	ND
LEAD	1.8E-05	7.0E-07	ND
MANGANESE	1.1E-05	4.4E-07	ND
MERCURY	ND	ND	ND
NICKEL	1.1E-05	4.4E-07	ND
SELENIUM	ND	ND	ND
THALLIUM	2.0E-06	8.0E-08	ND
VANADIUM	2.8E-05	1.1E-06	ND
TOTAL DOSE:	3.41E-03	1.74E-04	1.46E-02

ND = Not detected

**TABLE E - 38**  
**Noncarcinogenic Chronic Daily Intake**  
**Reasonable Maximum Exposure by an On-Site Industrial Worker at POND02**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	6.8E-05	1.6E-07	2.5E-03
1,1-DICHLOROETHENE	5.9E-06	1.4E-08	6.2E-04
4-METHYL-2-PENTANONE	1.9E-05	2.6E-06	4.2E-05
ACETONE	1.3E-04	3.1E-07	4.2E-04
BENZENE	1.7E-05	4.0E-08	3.3E-04
CHLOROBENZENE	1.9E-04	2.7E-05	9.6E-04
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	4.9E-05	6.8E-06	3.3E-04
M,P-XYLENE	2.8E-04	3.9E-05	1.8E-03
METHYLENE CHLORIDE	2.7E-04	6.2E-07	7.5E-03
O-XYLENE	1.5E-04	2.0E-05	7.3E-04
TETRACHLOROETHENE	3.1E-04	4.3E-05	4.3E-03
TOLUENE	9.8E-05	1.4E-05	1.1E-03
TRICHLOROETHENE	4.6E-05	6.5E-06	1.0E-03
VINYL CHLORIDE	4.7E-07	1.1E-09	1.2E-04
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	2.9E-07	1.4E-07	1.1E-07
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	3.2E-05	1.5E-05	4.0E-05
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	9.8E-06	4.5E-06	5.0E-08
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	9.8E-05	4.5E-05	4.9E-10
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	5.9E-06	2.7E-06	4.2E-07
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	1.9E-06	8.7E-08	ND
ARSENIC	ND	ND	ND
BARIUM	8.5E-05	4.0E-06	ND
CADMIUM	3.5E-06	1.6E-07	ND
COPPER	5.9E-06	2.7E-07	ND
IRON	9.3E-03	4.3E-04	ND
LEAD	5.8E-05	2.7E-06	ND
MANGANESE	3.7E-05	1.7E-06	ND
MERCURY	ND	ND	ND
NICKEL	3.6E-05	1.7E-06	ND
SELENIUM	ND	ND	ND
THALLIUM	6.7E-06	3.1E-07	ND
VANADIUM	9.4E-05	4.4E-06	ND
TOTAL DOSE:	1.14E-02	6.72E-04	2.18E-02

ND = Not detected

**TABLE E - 39**  
**Noncarcinogenic Chronic Daily Intake**  
**Central Tendency Exposure by an On-Site Resident at POND02**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	1.8E-04	7.3E-08	5.4E-03
1,1-DICHLOROETHENE	1.6E-05	6.3E-09	1.4E-03
4-METHYL-2-PENTANONE	5.0E-05	1.2E-06	9.2E-05
ACETONE	3.5E-04	1.4E-07	9.2E-04
BENZENE	4.6E-05	1.8E-08	7.2E-04
CHLOROBENZENE	5.1E-04	1.2E-05	2.1E-03
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	1.3E-04	3.1E-06	7.3E-04
M,P-XYLENE	7.6E-04	1.8E-05	3.8E-03
METHYLENE CHLORIDE	7.2E-04	2.9E-07	1.6E-02
O-XYLENE	3.9E-04	9.4E-06	1.6E-03
TETRACHLOROETHENE	8.2E-04	2.0E-05	9.5E-03
TOLUENE	2.6E-04	6.3E-06	2.5E-03
TRICHLOROETHENE	1.2E-04	3.0E-06	2.2E-03
VINYL CHLORIDE	1.3E-06	5.1E-10	2.5E-04
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	7.8E-07	6.3E-08	2.4E-07
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	8.5E-05	6.8E-06	8.8E-05
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	2.6E-05	2.1E-06	1.1E-07
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	2.6E-04	2.1E-05	1.1E-09
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	1.6E-05	1.3E-06	9.2E-07
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBs</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	5.0E-06	4.0E-08	ND
ARSENIC	ND	ND	ND
BARIUM	2.3E-04	1.8E-06	ND
CADMIUM	9.3E-06	7.4E-08	ND
COPPER	1.6E-05	1.3E-07	ND
IRON	2.5E-02	2.0E-04	ND
LEAD	1.6E-04	1.2E-06	ND
MANGANESE	9.8E-05	7.8E-07	ND
MERCURY	ND	ND	ND
NICKEL	9.7E-05	7.8E-07	ND
SELENIUM	ND	ND	ND
THALLIUM	1.8E-05	1.4E-07	ND
VANADIUM	2.5E-04	2.0E-06	ND
TOTAL DOSE:	3.03E-02	3.09E-04	4.76E-02

ND = Not detected

**TABLE E - 40**  
**Noncarcinogenic Chronic Daily Intake**  
**Reasonable Maximum Exposure by an On-Site Resident at POND02**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	5.1E-04	2.5E-07	4.3E-03
1,1-DICHLOROETHENE	4.4E-05	2.1E-08	1.1E-03
4-METHYL-2-PENTANONE	1.4E-04	4.1E-06	7.3E-05
ACETONE	9.9E-04	4.8E-07	7.4E-04
BENZENE	1.3E-04	6.2E-08	5.7E-04
CHLOROBENZENE	1.4E-03	4.2E-05	1.7E-03
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	3.7E-04	1.1E-05	5.8E-04
M,P-XYLENE	2.1E-03	6.2E-05	3.1E-03
METHYLENE CHLORIDE	2.0E-03	9.8E-07	1.3E-02
O-XYLENE	1.1E-03	3.2E-05	1.3E-03
TETRACHLOROETHENE	2.3E-03	6.7E-05	7.6E-03
TOLUENE	7.3E-04	2.1E-05	2.0E-03
TRICHLOROETHENE	3.5E-04	1.0E-05	1.8E-03
VINYL CHLORIDE	3.5E-06	1.7E-09	2.0E-04
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	2.2E-06	2.1E-07	1.9E-07
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	2.4E-04	2.3E-05	7.0E-05
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	7.3E-05	7.1E-06	8.8E-08
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	7.3E-04	7.1E-05	8.5E-10
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	4.4E-05	4.3E-06	7.4E-07
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	1.4E-05	1.4E-07	ND
ARSENIC	ND	ND	ND
BARIUM	6.4E-04	6.2E-06	ND
CADMIUM	2.6E-05	2.5E-07	ND
COPPER	4.4E-05	4.3E-07	ND
IRON	6.9E-02	6.7E-04	ND
LEAD	4.4E-04	4.3E-06	ND
MANGANESE	2.7E-04	2.7E-06	ND
MERCURY	ND	ND	ND
NICKEL	2.7E-04	2.6E-06	ND
SELENIUM	ND	ND	ND
THALLIUM	5.0E-05	4.9E-07	ND
VANADIUM	7.0E-04	6.9E-06	ND
TOTAL DOSE:	8.48E-02	1.06E-03	3.80E-02

ND = Not detected

**TABLE E - 41**  
**Carcinogenic Chronic Daily Intake**  
**Central Tendency Exposure by an On-Site Industrial Worker at POND03**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	1.9E-08	3.8E-11	1.8E-06
1,1-DICHLOROETHENE	4.2E-10	8.4E-13	5.5E-08
4-METHYL-2-PENTANONE	1.4E-07	1.6E-08	8.2E-07
ACETONE	ND	ND	ND
BENZENE	1.8E-09	3.6E-12	3.5E-08
CHLOROBENZENE	6.1E-06	7.3E-07	8.1E-05
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	1.9E-06	2.3E-07	3.4E-05
M,P-XYLENE	6.5E-06	7.8E-07	1.1E-04
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	6.5E-06	7.8E-07	8.7E-05
TETRACHLOROETHENE	6.8E-06	8.2E-07	2.6E-04
TOLUENE	1.0E-08	1.3E-09	3.3E-07
TRICHLOROETHENE	1.9E-08	2.3E-09	9.1E-07
VINYL CHLORIDE	3.5E-10	6.9E-13	2.3E-07
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	1.5E-07	5.9E-08	1.4E-08
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	2.1E-06	8.4E-07	4.0E-07
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	4.7E-10	1.9E-10	7.1E-12
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	9.0E-08	3.6E-08	2.5E-09
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	9.1E-08	3.6E-09	ND
ARSENIC	1.0E-08	1.3E-09	ND
BARIUM	8.4E-07	3.4E-08	ND
CADMIUM	3.4E-07	1.3E-08	ND
COPPER	1.4E-07	5.4E-09	ND
IRON	2.0E-04	8.0E-06	ND
LEAD	5.8E-06	2.3E-07	ND
MANGANESE	1.0E-06	4.0E-08	ND
MERCURY	ND	ND	ND
NICKEL	1.0E-06	4.1E-08	ND
SELENIUM	8.1E-09	3.2E-10	ND
THALLIUM	5.3E-07	2.1E-08	ND
VANADIUM	2.1E-06	8.4E-08	ND
<b>TOTAL DOSE:</b>	<b>2.41E-04</b>	<b>1.27E-05</b>	<b>5.70E-04</b>

ND = Not detected

**TABLE E - 42**  
**Carcinogenic Chronic Daily Intake**  
**Reasonable Maximum Exposure by an On-Site Industrial Worker at POND03**

<u>CHEMICALS</u>	<u>INGEST SOIL</u>	<u>DERMAL CONTACT</u>	<u>INHALE VAPOR</u>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	3.1E-07	7.3E-10	1.4E-05
1,1-DICHLOROETHENE	7.0E-09	1.6E-11	4.1E-07
4-METHYL-2-PENTANONE	2.3E-06	3.2E-07	6.1E-06
ACETONE	ND	ND	ND
BENZENE	3.0E-08	6.9E-11	2.6E-07
CHLOROBENZENE	1.0E-04	1.4E-05	6.1E-04
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	3.1E-05	4.4E-06	2.6E-04
M,P-XYLENE	1.1E-04	1.5E-05	8.0E-04
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	1.1E-04	1.5E-05	6.5E-04
TETRACHLOROETHENE	1.1E-04	1.6E-05	1.9E-03
TOLUENE	1.7E-07	2.4E-08	2.4E-06
TRICHLOROETHENE	3.1E-07	4.4E-08	6.8E-06
VINYL CHLORIDE	5.8E-09	1.3E-11	1.7E-06
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	2.4E-06	1.1E-06	1.1E-07
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	3.5E-05	1.6E-05	3.0E-06
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	7.9E-09	3.6E-09	5.3E-11
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	1.5E-06	7.0E-07	1.8E-08
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	1.5E-06	7.1E-08	ND
ARSENIC	1.7E-07	2.5E-08	ND
BARIUM	1.4E-05	6.5E-07	ND
CADMIUM	5.6E-06	2.6E-07	ND
COPPER	2.3E-06	1.0E-07	ND
IRON	3.3E-03	1.5E-04	ND
LEAD	9.6E-05	4.5E-06	ND
MANGANESE	1.7E-05	7.7E-07	ND
MERCURY	ND	ND	ND
NICKEL	1.7E-05	7.9E-07	ND
SELENIUM	1.3E-07	6.2E-09	ND
THALLIUM	8.9E-06	4.1E-07	ND
VANADIUM	3.5E-05	1.6E-06	ND
TOTAL DOSE:	4.02E-03	2.46E-04	4.25E-03

ND = Not detected

**TABLE E - 43**  
**Carcinogenic Chronic Daily Intake**  
**Central Tendency Exposure by an On-Site Resident at POND03**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	3.0E-07	1.2E-10	1.1E-05
1,1-DICHLOROETHENE	6.7E-09	2.7E-12	3.2E-07
4-METHYL-2-PENTANONE	2.2E-06	5.2E-08	4.8E-06
ACETONE	ND	ND	ND
BENZENE	2.8E-08	1.1E-11	2.0E-07
CHLOROBENZENE	9.7E-05	2.3E-06	4.8E-04
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	3.0E-05	7.3E-07	2.0E-04
M,P-XYLENE	1.0E-04	2.5E-06	6.3E-04
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	1.0E-04	2.5E-06	5.1E-04
TETRACHLOROETHENE	1.1E-04	2.6E-06	1.5E-03
TOLUENE	1.7E-07	4.0E-09	1.9E-06
TRICHLOROETHENE	3.0E-07	7.3E-09	5.4E-06
VINYL CHLORIDE	5.5E-09	2.2E-12	1.3E-06
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	2.3E-06	1.9E-07	8.5E-08
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	3.4E-05	2.7E-06	2.4E-06
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	7.5E-09	6.0E-10	4.2E-11
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	1.4E-06	1.2E-07	1.4E-08
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBs</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	1.5E-06	1.2E-08	ND
ARSENIC	1.6E-07	4.1E-09	ND
BARIUM	1.3E-05	1.1E-07	ND
CADMIUM	5.4E-06	4.3E-08	ND
COPPER	2.2E-06	1.7E-08	ND
IRON	3.2E-03	2.6E-05	ND
LEAD	9.2E-05	7.4E-07	ND
MANGANESE	1.6E-05	1.3E-07	ND
MERCURY	ND	ND	ND
NICKEL	1.6E-05	1.3E-07	ND
SELENIUM	1.3E-07	1.0E-09	ND
THALLIUM	8.5E-06	6.8E-08	ND
VANADIUM	3.4E-05	2.7E-07	ND
<b>TOTAL DOSE:</b>	<b>3.86E-03</b>	<b>4.08E-05</b>	<b>3.34E-03</b>

ND = Not detected

**TABLE E - 44**  
**Carcinogenic Chronic Daily Intake**  
**Reasonable Maximum Exposure by an On-Site Resident at POND03**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	2.8E-06	1.4E-09	2.8E-05
1,1-DICHLOROETHENE	6.3E-08	3.1E-11	8.6E-07
4-METHYL-2-PENTANONE	2.0E-05	6.0E-07	1.3E-05
ACETONE	ND	ND	ND
BENZENE	2.7E-07	1.3E-10	5.4E-07
CHLOROBENZENE	9.1E-04	2.7E-05	1.3E-03
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	2.8E-04	8.2E-06	5.4E-04
M,P-XYLENE	9.7E-04	2.8E-05	1.7E-03
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	9.7E-04	2.8E-05	1.4E-03
TETRACHLOROETHENE	1.0E-03	3.0E-05	4.0E-03
TOLUENE	1.6E-06	4.6E-08	5.1E-06
TRICHLOROETHENE	2.8E-06	8.2E-08	1.4E-05
VINYL CHLORIDE	5.2E-08	2.5E-11	3.5E-06
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	2.2E-05	2.1E-06	2.3E-07
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	3.1E-04	3.1E-05	6.3E-06
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	7.0E-08	6.9E-09	1.1E-10
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	1.3E-05	1.3E-06	3.8E-08
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBs</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	1.4E-05	1.3E-07	ND
ARSENIC	1.5E-06	4.6E-08	ND
BARIUM	1.3E-04	1.2E-06	ND
CADMIUM	5.0E-05	4.9E-07	ND
COPPER	2.0E-05	2.0E-07	ND
IRON	3.0E-02	2.9E-04	ND
LEAD	8.6E-04	8.4E-06	ND
MANGANESE	1.5E-04	1.5E-06	ND
MERCURY	ND	ND	ND
NICKEL	1.5E-04	1.5E-06	ND
SELENIUM	1.2E-06	1.2E-08	ND
THALLIUM	8.0E-05	7.8E-07	ND
VANADIUM	3.1E-04	3.1E-06	ND
TOTAL DOSE:	3.60E-02	4.64E-04	8.89E-03

ND = Not detected

**TABLE E - 45**  
**Noncarcinogenic Chronic Daily Intake**  
**Central Tendency Exposure by an On-Site Industrial Worker at POND03**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	2.6E-07	5.3E-10	2.5E-05
1,1-DICHLOROETHENE	5.9E-09	1.2E-11	7.7E-07
4-METHYL-2-PENTANONE	1.9E-06	2.3E-07	1.2E-05
ACETONE	ND	ND	ND
BENZENE	2.5E-08	5.0E-11	4.9E-07
CHLOROBENZENE	8.5E-05	1.0E-05	1.1E-03
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	2.6E-05	3.2E-06	4.8E-04
M,P-XYLENE	9.1E-05	1.1E-05	1.5E-03
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	9.1E-05	1.1E-05	1.2E-03
TETRACHLOROETHENE	9.5E-05	1.1E-05	3.6E-03
TOLUENE	1.5E-07	1.8E-08	4.6E-06
TRICHLOROETHENE	2.6E-07	3.2E-08	1.3E-05
VINYL CHLORIDE	4.8E-09	9.7E-12	3.2E-06
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	2.1E-06	8.2E-07	2.0E-07
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	2.9E-05	1.2E-05	5.6E-06
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	6.6E-09	2.6E-09	9.9E-11
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	1.3E-06	5.0E-07	3.4E-08
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	1.3E-06	5.1E-08	ND
ARSENIC	1.4E-07	1.8E-08	ND
BARIUM	1.2E-05	4.7E-07	ND
CADMIUM	4.7E-06	1.9E-07	ND
COPPER	1.9E-06	7.6E-08	ND
IRON	2.8E-03	1.1E-04	ND
LEAD	8.1E-05	3.2E-06	ND
MANGANESE	1.4E-05	5.6E-07	ND
MERCURY	ND	ND	ND
NICKEL	1.4E-05	5.7E-07	ND
SELENIUM	1.1E-07	4.5E-09	ND
THALLIUM	7.5E-06	3.0E-07	ND
VANADIUM	2.9E-05	1.2E-06	ND
TOTAL DOSE:	3.38E-03	1.78E-04	7.98E-03

ND = Not detected

**TABLE E - 46**  
**Noncarcinogenic Chronic Daily Intake**  
**Reasonable Maximum Exposure by an On-Site Industrial Worker at POND03**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	8.8E-07	2.0E-09	3.8E-05
1,1-DICHLOROETHENE	2.0E-08	4.5E-11	1.1E-06
4-METHYL-2-PENTANONE	6.4E-06	8.9E-07	1.7E-05
ACETONE	ND	ND	ND
BENZENE	8.3E-08	1.9E-10	7.3E-07
CHLOROBENZENE	2.8E-04	3.9E-05	1.7E-03
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	8.8E-05	1.2E-05	7.2E-04
M,P-XYLENE	3.0E-04	4.2E-05	2.2E-03
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	3.0E-04	4.2E-05	1.8E-03
TETRACHLOROETHENE	3.2E-04	4.4E-05	5.3E-03
TOLUENE	4.9E-07	6.8E-08	6.8E-06
TRICHLOROETHENE	8.8E-07	1.2E-07	1.9E-05
VINYL CHLORIDE	1.6E-08	3.7E-11	4.7E-06
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	6.8E-06	3.2E-06	3.0E-07
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	9.8E-05	4.5E-05	8.4E-06
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	2.2E-08	1.0E-08	1.5E-10
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	4.2E-06	2.0E-06	5.1E-08
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBs</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	4.3E-06	2.0E-07	ND
ARSENIC	4.6E-07	6.9E-08	ND
BARIUM	3.9E-05	1.8E-06	ND
CADMIUM	1.6E-05	7.3E-07	ND
COPPER	6.3E-06	2.9E-07	ND
IRON	9.3E-03	4.3E-04	ND
LEAD	2.7E-04	1.2E-05	ND
MANGANESE	4.6E-05	2.2E-06	ND
MERCURY	ND	ND	ND
NICKEL	4.7E-05	2.2E-06	ND
SELENIUM	3.8E-07	1.7E-08	ND
THALLIUM	2.5E-05	1.2E-06	ND
VANADIUM	9.8E-05	4.5E-06	ND
TOTAL DOSE:	1.13E-02	6.89E-04	1.19E-02

ND = Not detected

**TABLE E - 47**  
**Noncarcinogenic Chronic Daily Intake**  
**Central Tendency Exposure by an On-Site Resident at POND03**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	2.3E-06	9.4E-10	8.3E-05
1,1-DICHLOROETHENE	5.2E-08	2.1E-11	2.5E-06
4-METHYL-2-PENTANONE	1.7E-05	4.1E-07	3.7E-05
ACETONE	ND	ND	ND
BENZENE	2.2E-07	8.9E-11	1.6E-06
CHLOROBENZENE	7.6E-04	1.8E-05	3.7E-03
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	2.3E-04	5.6E-06	1.6E-03
M,P-XYLENE	8.1E-04	1.9E-05	4.9E-03
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	8.1E-04	1.9E-05	3.9E-03
TETRACHLOROETHENE	8.5E-04	2.0E-05	1.2E-02
TOLUENE	1.3E-06	3.1E-08	1.5E-05
TRICHLOROETHENE	2.3E-06	5.6E-08	4.2E-05
VINYL CHLORIDE	4.3E-08	1.7E-11	1.0E-05
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	1.8E-05	1.5E-06	6.6E-07
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	2.6E-04	2.1E-05	1.8E-05
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	5.9E-08	4.7E-09	3.2E-10
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	1.1E-05	9.0E-07	1.1E-07
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	1.1E-05	9.1E-08	ND
ARSENIC	1.2E-06	3.2E-08	ND
BARIUM	1.0E-04	8.4E-07	ND
CADMIUM	4.2E-05	3.3E-07	ND
COPPER	1.7E-05	1.3E-07	ND
IRON	2.5E-02	2.0E-04	ND
LEAD	7.2E-04	5.7E-06	ND
MANGANESE	1.2E-04	9.9E-07	ND
MERCURY	ND	ND	ND
NICKEL	1.3E-04	1.0E-06	ND
SELENIUM	1.0E-06	8.0E-09	ND
THALLIUM	6.6E-05	5.3E-07	ND
VANADIUM	2.6E-04	2.1E-06	ND
TOTAL DOSE:	3.00E-02	3.17E-04	2.60E-02

ND = Not detected

**TABLE E - 48**  
**Noncarcinogenic Chronic Daily Intake**  
**Reasonable Maximum Exposure by an On-Site Resident at POND03**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	6.6E-06	3.2E-09	6.6E-05
1,1-DICHLOROETHENE	1.5E-07	7.1E-11	2.0E-06
4-METHYL-2-PENTANONE	4.7E-05	1.4E-06	3.0E-05
ACETONE	ND	ND	ND
BENZENE	6.2E-07	3.0E-10	1.3E-06
CHLOROBENZENE	2.1E-03	6.2E-05	3.0E-03
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	6.6E-04	1.9E-05	1.3E-03
M,P-XYLENE	2.3E-03	6.6E-05	3.9E-03
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	2.3E-03	6.6E-05	3.2E-03
TETRACHLOROETHENE	2.4E-03	7.0E-05	9.3E-03
TOLUENE	3.7E-06	1.1E-07	1.2E-05
TRICHLOROETHENE	6.6E-06	1.9E-07	3.3E-05
VINYL CHLORIDE	1.2E-07	5.9E-11	8.2E-06
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	5.1E-05	5.0E-06	5.3E-07
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	7.3E-04	7.1E-05	1.5E-05
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	1.6E-07	1.6E-08	2.6E-10
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	3.1E-05	3.1E-06	8.9E-08
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	3.2E-05	3.1E-07	ND
ARSENIC	3.5E-06	1.1E-07	ND
BARIUM	2.9E-04	2.9E-06	ND
CADMIUM	1.2E-04	1.1E-06	ND
COPPER	4.7E-05	4.6E-07	ND
IRON	6.9E-02	6.8E-04	ND
LEAD	2.0E-03	2.0E-05	ND
MANGANESE	3.5E-04	3.4E-06	ND
MERCURY	ND	ND	ND
NICKEL	3.5E-04	3.5E-06	ND
SELENIUM	2.8E-06	2.7E-08	ND
THALLIUM	1.9E-04	1.8E-06	ND
VANADIUM	7.3E-04	7.1E-06	ND
TOTAL DOSE:	8.41E-02	1.08E-03	2.07E-02

ND = Not detected

**TABLE E - 49**  
**Carcinogenic Chronic Daily Intake**  
**Central Tendency Exposure by an On-Site Industrial Worker at SP**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	4.9E-09	9.9E-12	2.9E-07
1,1-DICHLOROETHENE	1.5E-10	2.9E-13	2.5E-08
4-METHYL-2-PENTANONE	4.7E-08	5.7E-09	1.7E-07
ACETONE	ND	ND	ND
BENZENE	4.7E-10	9.4E-13	1.5E-08
CHLOROBENZENE	1.5E-07	1.8E-08	1.2E-06
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	8.6E-09	1.0E-09	9.4E-08
M,P-XYLENE	1.6E-08	1.9E-09	1.6E-07
METHYLENE CHLORIDE	5.8E-10	1.2E-12	2.6E-08
O-XYLENE	1.4E-08	1.6E-09	1.1E-07
TETRACHLOROETHENE	1.5E-08	1.8E-09	3.3E-07
TOLUENE	6.8E-08	8.2E-09	1.3E-06
TRICHLOROETHENE	1.0E-08	1.3E-09	3.7E-07
VINYL CHLORIDE	4.5E-09	9.0E-12	1.8E-06
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	2.6E-09	1.0E-09	1.5E-09
1,3-DICHLOROBENZENE	1.6E-10	6.3E-11	3.8E-10
1,4-DICHLOROBENZENE	1.3E-09	5.0E-10	2.5E-09
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	1.6E-09	6.3E-10	1.3E-11
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	1.0E-08	4.2E-09	8.3E-14
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	ND	ND	ND
BARIUM	2.3E-06	9.2E-08	ND
CADMIUM	ND	ND	ND
COPPER	2.3E-07	9.2E-09	ND
IRON	1.6E-04	6.3E-06	ND
LEAD	1.5E-06	5.9E-08	ND
MANGANESE	1.2E-06	4.6E-08	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	2.3E-06	9.2E-08	ND
TOTAL DOSE:	1.65E-04	6.63E-06	5.82E-06

ND = Not detected

**TABLE E - 50**  
**Carcinogenic Chronic Daily Intake**  
**Reasonable Maximum Exposure by an On-Site Industrial Worker at SP**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	8.2E-08	1.9E-10	2.1E-06
1,1-DICHLOROETHENE	2.4E-09	5.7E-12	1.9E-07
4-METHYL-2-PENTANONE	7.9E-07	1.1E-07	1.3E-06
ACETONE	ND	ND	ND
BENZENE	7.9E-09	1.8E-11	1.1E-07
CHLOROBENZENE	2.4E-06	3.4E-07	8.8E-06
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	1.4E-07	2.0E-08	7.0E-07
M,P-XYLENE	2.6E-07	3.6E-08	1.2E-06
METHYLENE CHLORIDE	9.6E-09	2.2E-11	1.9E-07
O-XYLENE	2.3E-07	3.2E-08	8.1E-07
TETRACHLOROETHENE	2.4E-07	3.4E-08	2.5E-06
TOLUENE	1.1E-06	1.6E-07	9.5E-06
TRICHLOROETHENE	1.7E-07	2.4E-08	2.8E-06
VINYL CHLORIDE	7.5E-08	1.7E-10	1.3E-05
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	4.4E-08	2.0E-08	1.1E-08
1,3-DICHLOROBENZENE	2.6E-09	1.2E-09	2.8E-09
1,4-DICHLOROBENZENE	2.1E-08	9.7E-09	1.9E-08
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	2.6E-08	1.2E-08	9.7E-11
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	1.7E-07	8.1E-08	6.2E-13
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	ND	ND	ND
BARIUM	3.8E-05	1.8E-06	ND
CADMIUM	ND	ND	ND
COPPER	3.8E-06	1.8E-07	ND
IRON	2.6E-03	1.2E-04	ND
LEAD	2.4E-05	1.1E-06	ND
MANGANESE	1.9E-05	8.9E-07	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	3.8E-05	1.8E-06	ND
TOTAL DOSE:	2.75E-03	1.28E-04	4.34E-05

ND = Not detected

**TABLE E - 51**  
**Carcinogenic Chronic Daily Intake**  
**Central Tendency Exposure by an On-Site Resident at SP**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	7.9E-08	3.2E-11	1.7E-06
1,1-DICHLOROETHENE	2.3E-09	9.4E-13	1.5E-07
4-METHYL-2-PENTANONE	7.5E-07	1.8E-08	1.0E-06
ACETONE	ND	ND	ND
BENZENE	7.5E-09	3.0E-12	8.5E-08
CHLOROBENZENE	2.3E-06	5.6E-08	6.9E-06
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	1.4E-07	3.3E-09	5.5E-07
M,P-XYLENE	2.5E-07	6.0E-09	9.1E-07
METHYLENE CHLORIDE	9.2E-09	3.7E-12	1.5E-07
O-XYLENE	2.2E-07	5.2E-09	6.4E-07
TETRACHLOROETHENE	2.3E-07	5.6E-09	1.9E-06
TOLUENE	1.1E-06	2.6E-08	7.5E-06
TRICHLOROETHENE	1.7E-07	4.0E-09	2.2E-06
VINYL CHLORIDE	7.2E-08	2.9E-11	1.0E-05
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	4.2E-08	3.4E-09	9.0E-09
1,3-DICHLOROBENZENE	2.5E-09	2.0E-10	2.2E-09
1,4-DICHLOROBENZENE	2.0E-08	1.6E-09	1.5E-08
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	2.5E-08	2.0E-09	7.6E-11
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	1.7E-07	1.3E-08	4.9E-13
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBs</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	ND	ND	ND
BARIUM	3.7E-05	3.0E-07	ND
CADMIUM	ND	ND	ND
COPPER	3.7E-06	3.0E-08	ND
IRON	2.5E-03	2.0E-05	ND
LEAD	2.3E-05	1.9E-07	ND
MANGANESE	1.8E-05	1.5E-07	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	3.7E-05	3.0E-07	ND
<b>TOTAL DOSE:</b>	<b>2.64E-03</b>	<b>2.12E-05</b>	<b>3.41E-05</b>

ND = Not detected

**TABLE E - 52**  
**Carcinogenic Chronic Daily Intake**  
**Reasonable Maximum Exposure by an On-Site Resident at SP**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	7.4E-07	3.6E-10	4.5E-06
1,1-DICHLOROETHENE	2.2E-08	1.1E-11	3.9E-07
4-METHYL-2-PENTANONE	7.0E-06	2.1E-07	2.7E-06
ACETONE	ND	ND	ND
BENZENE	7.0E-08	3.4E-11	2.3E-07
CHLOROBENZENE	2.2E-05	6.4E-07	1.8E-05
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	1.3E-06	3.8E-08	1.5E-06
M,P-XYLENE	2.3E-06	6.9E-08	2.4E-06
METHYLENE CHLORIDE	8.6E-08	4.2E-11	4.0E-07
O-XYLENE	2.0E-06	6.0E-08	1.7E-06
TETRACHLOROETHENE	2.2E-06	6.4E-08	5.2E-06
TOLUENE	1.0E-05	3.0E-07	2.0E-05
TRICHLOROETHENE	1.6E-06	4.6E-08	5.8E-06
VINYL CHLORIDE	6.7E-07	3.3E-10	2.8E-05
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	3.9E-07	3.8E-08	2.4E-08
1,3-DICHLOROBENZENE	2.3E-08	2.3E-09	5.9E-09
1,4-DICHLOROBENZENE	1.9E-07	1.8E-08	4.0E-08
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	2.3E-07	2.3E-08	2.0E-10
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	1.6E-06	1.5E-07	1.3E-12
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	ND	ND	ND
BARIUM	3.4E-04	3.4E-06	ND
CADMIUM	ND	ND	ND
COPPER	3.4E-05	3.4E-07	ND
IRON	2.3E-02	2.3E-04	ND
LEAD	2.2E-04	2.1E-06	ND
MANGANESE	1.7E-04	1.7E-06	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	3.4E-04	3.4E-06	ND
TOTAL DOSE:	2.47E-02	2.42E-04	9.08E-05

ND = Not detected

**TABLE E - 53**  
**Noncarcinogenic Chronic Daily Intake**  
**Central Tendency Exposure by an On-Site Industrial Worker at SP**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	6.9E-08	1.4E-10	4.0E-06
1,1-DICHLOROETHENE	2.1E-09	4.1E-12	3.5E-07
4-METHYL-2-PENTANONE	6.6E-07	7.9E-08	2.4E-06
ACETONE	ND	ND	ND
BENZENE	6.6E-09	1.3E-11	2.0E-07
CHLOROBENZENE	2.1E-06	2.5E-07	1.7E-05
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	1.2E-07	1.4E-08	1.3E-06
M,P-XYLENE	2.2E-07	2.6E-08	2.2E-06
METHYLENE CHLORIDE	8.1E-09	1.6E-11	3.6E-07
O-XYLENE	1.9E-07	2.3E-08	1.5E-06
TETRACHLOROETHENE	2.1E-07	2.5E-08	4.6E-06
TOLUENE	9.5E-07	1.1E-07	1.8E-05
TRICHLOROETHENE	1.5E-07	1.8E-08	5.2E-06
VINYL CHLORIDE	6.3E-08	1.3E-10	2.5E-05
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	3.7E-08	1.5E-08	2.2E-08
1,3-DICHLOROBENZENE	2.2E-09	8.8E-10	5.3E-09
1,4-DICHLOROBENZENE	1.8E-08	7.0E-09	3.6E-08
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	2.2E-08	8.8E-09	1.8E-10
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	1.5E-07	5.9E-08	1.2E-12
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBs</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	ND	ND	ND
BARIUM	3.2E-05	1.3E-06	ND
CADMIUM	ND	ND	ND
COPPER	3.2E-06	1.3E-07	ND
IRON	2.2E-03	8.8E-05	ND
LEAD	2.1E-05	8.2E-07	ND
MANGANESE	1.6E-05	6.5E-07	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	3.2E-05	1.3E-06	ND
TOTAL DOSE:	2.31E-03	9.29E-05	8.15E-05

ND = Not detected

**TABLE E - 54**  
**Noncarcinogenic Chronic Daily Intake**  
**Reasonable Maximum Exposure by an On-Site Industrial Worker at SP**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	2.3E-07	5.3E-10	6.0E-06
1,1-DICHLOROETHENE	6.8E-09	1.6E-11	5.2E-07
4-METHYL-2-PENTANONE	2.2E-06	3.1E-07	3.6E-06
ACETONE	ND	ND	ND
BENZENE	2.2E-08	5.1E-11	3.0E-07
CHLOROBENZENE	6.8E-06	9.5E-07	2.5E-05
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	4.0E-07	5.6E-08	2.0E-06
M,P-XYLENE	7.3E-07	1.0E-07	3.3E-06
METHYLENE CHLORIDE	2.7E-08	6.2E-11	5.4E-07
O-XYLENE	6.4E-07	8.9E-08	2.3E-06
TETRACHLOROETHENE	6.8E-07	9.5E-08	6.9E-06
TOLUENE	3.2E-06	4.4E-07	2.7E-05
TRICHLOROETHENE	4.9E-07	6.8E-08	7.7E-06
VINYL CHLORIDE	2.1E-07	4.9E-10	3.7E-05
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	1.2E-07	5.7E-08	3.2E-08
1,3-DICHLOROBENZENE	7.3E-09	3.4E-09	7.9E-09
1,4-DICHLOROBENZENE	5.9E-08	2.7E-08	5.3E-08
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	7.3E-08	3.4E-08	2.7E-10
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	4.9E-07	2.3E-07	1.7E-12
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	ND	ND	ND
BARIUM	1.1E-04	5.0E-06	ND
CADMIUM	ND	ND	ND
COPPER	1.1E-05	5.0E-07	ND
IRON	7.3E-03	3.4E-04	ND
LEAD	6.8E-05	3.2E-06	ND
MANGANESE	5.4E-05	2.5E-06	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	1.1E-04	5.0E-06	ND
<b>TOTAL DOSE:</b>	<b>7.70E-03</b>	<b>3.59E-04</b>	<b>1.21E-04</b>

ND = Not detected

**TABLE E - 55**  
**Noncarcinogenic Chronic Daily Intake**  
**Central Tendency Exposure by an On-Site Resident at SP**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	6.1E-07	2.5E-10	1.3E-05
1,1-DICHLOROETHENE	1.8E-08	7.3E-12	1.1E-06
4-METHYL-2-PENTANONE	5.9E-06	1.4E-07	7.8E-06
ACETONE	ND	ND	ND
BENZENE	5.9E-08	2.3E-11	6.6E-07
CHLOROBENZENE	1.8E-05	4.4E-07	5.4E-05
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	1.1E-06	2.6E-08	4.3E-06
M,P-XYLENE	2.0E-06	4.7E-08	7.1E-06
METHYLENE CHLORIDE	7.2E-08	2.9E-11	1.2E-06
O-XYLENE	1.7E-06	4.1E-08	5.0E-06
TETRACHLOROETHENE	1.8E-06	4.4E-08	1.5E-05
TOLUENE	8.5E-06	2.0E-07	5.8E-05
TRICHLOROETHENE	1.3E-06	3.1E-08	1.7E-05
VINYL CHLORIDE	5.6E-07	2.2E-10	8.1E-05
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	3.3E-07	2.6E-08	7.0E-08
1,3-DICHLOROBENZENE	2.0E-08	1.6E-09	1.7E-08
1,4-DICHLOROBENZENE	1.6E-07	1.3E-08	1.2E-07
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	2.0E-07	1.6E-08	5.9E-10
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	1.3E-06	1.0E-07	3.8E-12
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBs</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	ND	ND	ND
BARIUM	2.9E-04	2.3E-06	ND
CADMIUM	ND	ND	ND
COPPER	2.9E-05	2.3E-07	ND
IRON	2.0E-02	1.6E-04	ND
LEAD	1.8E-04	1.5E-06	ND
MANGANESE	1.4E-04	1.1E-06	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	2.9E-04	2.3E-06	ND
TOTAL DOSE:	2.05E-02	1.65E-04	2.65E-04

ND = Not detected

**TABLE E - 56**  
**Noncarcinogenic Chronic Daily Intake**  
**Reasonable Maximum Exposure by an On-Site Resident at SP**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	1.7E-06	8.4E-10	1.0E-05
1,1-DICHLOROETHENE	5.1E-08	2.5E-11	9.0E-07
4-METHYL-2-PENTANONE	1.6E-05	4.8E-07	6.2E-06
ACETONE	ND	ND	ND
BENZENE	1.6E-07	8.0E-11	5.3E-07
CHLOROBENZENE	5.1E-05	1.5E-06	4.3E-05
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	3.0E-06	8.8E-08	3.4E-06
M,P-XYLENE	5.5E-06	1.6E-07	5.7E-06
METHYLENE CHLORIDE	2.0E-07	9.8E-11	9.3E-07
O-XYLENE	4.7E-06	1.4E-07	4.0E-06
TETRACHLOROETHENE	5.1E-06	1.5E-07	1.2E-05
TOLUENE	2.4E-05	7.0E-07	4.7E-05
TRICHLOROETHENE	3.7E-06	1.1E-07	1.3E-05
VINYL CHLORIDE	1.6E-06	7.7E-10	6.5E-05
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	9.1E-07	8.9E-08	5.6E-08
1,3-DICHLOROBENZENE	5.5E-08	5.3E-09	1.4E-08
1,4-DICHLOROBENZENE	4.4E-07	4.3E-08	9.3E-08
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	5.5E-07	5.3E-08	4.7E-10
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	3.7E-06	3.6E-07	3.0E-12
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	ND	ND	ND
BARIUM	8.0E-04	7.8E-06	ND
CADMIUM	ND	ND	ND
COPPER	8.0E-05	7.8E-07	ND
IRON	5.5E-02	5.3E-04	ND
LEAD	5.1E-04	5.0E-06	ND
MANGANESE	4.0E-04	3.9E-06	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	8.0E-04	7.8E-06	ND
TOTAL DOSE:	5.75E-02	5.64E-04	2.12E-04

ND = Not detected

**TABLE E - 57**  
**Carcinogenic Chronic Daily Intake**  
**Central Tendency Exposure by an On-Site Industrial Worker at SSA**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	1.4E-10	2.7E-13	1.1E-08
1,1-DICHLOROETHENE	ND	ND	ND
4-METHYL-2-PENTANONE	8.7E-09	1.0E-09	4.2E-08
ACETONE	ND	ND	ND
BENZENE	1.8E-09	3.6E-12	7.3E-08
CHLOROBENZENE	8.0E-08	9.6E-09	8.6E-07
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	1.9E-09	2.3E-10	2.8E-08
M,P-XYLENE	1.0E-10	1.3E-11	1.4E-09
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	6.3E-11	7.5E-12	6.7E-10
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	7.4E-10	8.9E-11	1.9E-08
TRICHLOROETHENE	3.1E-11	3.8E-12	1.5E-09
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	5.2E-10	2.1E-10	4.1E-10
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBs</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	ND	ND	ND
BARIUM	1.8E-06	7.1E-08	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	1.4E-04	5.5E-06	ND
LEAD	1.2E-07	4.6E-09	ND
MANGANESE	6.9E-07	2.8E-08	ND
MERCURY	ND	ND	ND
NICKEL	1.7E-06	6.7E-08	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	2.1E-06	8.4E-08	ND
TOTAL DOSE:	1.43E-04	5.72E-06	1.03E-06

ND = Not detected

**TABLE E - 58**  
**Carcinogenic Chronic Daily Intake**  
**Reasonable Maximum Exposure by an On-Site Industrial Worker at SSA**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	2.3E-09	5.3E-12	7.8E-08
1,1-DICHLOROETHENE	ND	ND	ND
4-METHYL-2-PENTANONE	1.5E-07	2.0E-08	3.1E-07
ACETONE	ND	ND	ND
BENZENE	3.0E-08	6.9E-11	5.4E-07
CHLOROBENZENE	1.3E-06	1.8E-07	6.4E-06
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	3.1E-08	4.4E-09	2.1E-07
M,P-XYLENE	1.7E-09	2.4E-10	1.0E-08
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	1.0E-09	1.5E-10	5.0E-09
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	1.2E-08	1.7E-09	1.4E-07
TRICHLOROETHENE	5.2E-10	7.3E-11	1.1E-08
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	8.7E-09	4.1E-09	3.1E-09
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	ND	ND	ND
BARIUM	3.0E-05	1.4E-06	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	2.3E-03	1.1E-04	ND
LEAD	1.9E-06	8.9E-08	ND
MANGANESE	1.2E-05	5.4E-07	ND
MERCURY	ND	ND	ND
NICKEL	2.8E-05	1.3E-06	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	3.5E-05	1.6E-06	ND
<b>TOTAL DOSE:</b>	<b>2.38E-03</b>	<b>1.11E-04</b>	<b>7.69E-06</b>

ND = Not detected

**TABLE E - 59**  
**Carcinogenic Chronic Daily Intake**  
**Central Tendency Exposure by an On-Site Resident at SSA**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	2.2E-09	8.7E-13	6.2E-08
1,1-DICHLOROETHENE	ND	ND	ND
4-METHYL-2-PENTANONE	1.4E-07	3.3E-09	2.5E-07
ACETONE	ND	ND	ND
BENZENE	2.8E-08	1.1E-11	4.3E-07
CHLOROBENZENE	1.3E-06	3.1E-08	5.0E-06
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	3.0E-08	7.3E-10	1.6E-07
M,P-XYLENE	1.7E-09	4.0E-11	8.1E-09
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	1.0E-09	2.4E-11	3.9E-09
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	1.2E-08	2.9E-10	1.1E-07
TRICHLOROETHENE	5.0E-10	1.2E-11	8.6E-09
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	8.4E-09	6.7E-10	2.4E-09
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	ND	ND	ND
BARIUM	2.8E-05	2.3E-07	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	2.2E-03	1.7E-05	ND
LEAD	1.8E-06	1.5E-08	ND
MANGANESE	1.1E-05	8.9E-08	ND
MERCURY	ND	ND	ND
NICKEL	2.7E-05	2.1E-07	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	3.4E-05	2.7E-07	ND
<b>TOTAL DOSE:</b>	<b>2.28E-03</b>	<b>1.83E-05</b>	<b>6.04E-06</b>

ND = Not detected

**TABLE E - 60**  
**Carcinogenic Chronic Daily Intake**  
**Reasonable Maximum Exposure by an On-Site Resident at SSA**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	2.0E-08	9.9E-12	1.6E-07
1,1-DICHLOROETHENE	ND	ND	ND
4-METHYL-2-PENTANONE	1.3E-06	3.8E-08	6.6E-07
ACETONE	ND	ND	ND
BENZENE	2.7E-07	1.3E-10	1.1E-06
CHLOROBENZENE	1.2E-05	3.5E-07	1.3E-05
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	2.8E-07	8.2E-09	4.3E-07
M,P-XYLENE	1.6E-08	4.6E-10	2.2E-08
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	9.4E-09	2.7E-10	1.0E-08
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	1.1E-07	3.3E-09	2.9E-07
TRICHLOROETHENE	4.7E-09	1.4E-10	2.3E-08
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	7.8E-08	7.6E-09	6.4E-09
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	ND	ND	ND
BARIUM	2.7E-04	2.6E-06	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	2.0E-02	2.0E-04	ND
LEAD	1.7E-05	1.7E-07	ND
MANGANESE	1.0E-04	1.0E-06	ND
MERCURY	ND	ND	ND
NICKEL	2.5E-04	2.4E-06	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	3.1E-04	3.1E-06	ND
TOTAL DOSE:	2.13E-02	2.08E-04	1.61E-05

ND = Not detected

**TABLE E - 61**  
**Noncarcinogenic Chronic Daily Intake**  
**Central Tendency Exposure by an On-Site Industrial Worker at SSA**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	1.9E-09	3.8E-12	1.5E-07
1,1-DICHLOROETHENE	ND	ND	ND
4-METHYL-2-PENTANONE	1.2E-07	1.5E-08	5.9E-07
ACETONE	ND	ND	ND
BENZENE	2.5E-08	5.0E-11	1.0E-06
CHLOROBENZENE	1.1E-06	1.3E-07	1.2E-05
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	2.6E-08	3.2E-09	3.9E-07
M,P-XYLENE	1.5E-09	1.8E-10	1.9E-08
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	8.8E-10	1.1E-10	9.4E-09
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	1.0E-08	1.3E-09	2.6E-07
TRICHLOROETHENE	4.4E-10	5.3E-11	2.1E-08
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	7.3E-09	2.9E-09	5.8E-09
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	ND	ND	ND
BARIUM	2.5E-05	1.0E-06	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	1.9E-03	7.6E-05	ND
LEAD	1.6E-06	6.5E-08	ND
MANGANESE	9.7E-06	3.9E-07	ND
MERCURY	ND	ND	ND
NICKEL	2.3E-05	9.4E-07	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	2.9E-05	1.2E-06	ND
TOTAL DOSE:	2.00E-03	8.00E-05	1.44E-05

ND = Not detected

**TABLE E - 62**  
**Noncarcinogenic Chronic Daily Intake**  
**Reasonable Maximum Exposure by an On-Site Industrial Worker at SSA**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	6.4E-09	1.5E-11	2.2E-07
1,1-DICHLOROETHENE	ND	ND	ND
4-METHYL-2-PENTANONE	4.1E-07	5.7E-08	8.8E-07
ACETONE	ND	ND	ND
BENZENE	8.3E-08	1.9E-10	1.5E-06
CHLOROBENZENE	3.7E-06	5.2E-07	1.8E-05
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	8.8E-08	1.2E-08	5.8E-07
M,P-XYLENE	4.9E-09	6.8E-10	2.9E-08
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	2.9E-09	4.1E-10	1.4E-08
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	3.5E-08	4.8E-09	3.9E-07
TRICHLOROETHENE	1.5E-09	2.0E-10	3.1E-08
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	2.4E-08	1.1E-08	8.6E-09
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	ND	ND	ND
BARIUM	8.3E-05	3.9E-06	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	6.4E-03	3.0E-04	ND
LEAD	5.4E-06	2.5E-07	ND
MANGANESE	3.2E-05	1.5E-06	ND
MERCURY	ND	ND	ND
NICKEL	7.8E-05	3.6E-06	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	9.8E-05	4.5E-06	ND
TOTAL DOSE:	6.66E-03	3.09E-04	2.15E-05

ND = Not detected

**TABLE E - 63**  
**Noncarcinogenic Chronic Daily Intake**  
**Central Tendency Exposure by an On-Site Resident at SSA**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	1.7E-08	6.8E-12	4.8E-07
1,1-DICHLOROETHENE	ND	ND	ND
4-METHYL-2-PENTANONE	1.1E-06	2.6E-08	1.9E-06
ACETONE	ND	ND	ND
BENZENE	2.2E-07	8.9E-11	3.3E-06
CHLOROBENZENE	9.9E-06	2.4E-07	3.9E-05
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	2.3E-07	5.6E-09	1.3E-06
M,P-XYLENE	1.3E-08	3.1E-10	6.3E-08
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	7.8E-09	1.9E-10	3.1E-08
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	9.3E-08	2.2E-09	8.5E-07
TRICHLOROETHENE	3.9E-09	9.4E-11	6.7E-08
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	6.5E-08	5.2E-09	1.9E-08
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	ND	ND	ND
BARIUM	2.2E-04	1.8E-06	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	1.7E-02	1.4E-04	ND
LEAD	1.4E-05	1.1E-07	ND
MANGANESE	8.6E-05	6.9E-07	ND
MERCURY	ND	ND	ND
NICKEL	2.1E-04	1.7E-06	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	2.6E-04	2.1E-06	ND
TOTAL DOSE:	1.77E-02	1.42E-04	4.70E-05

ND = Not detected

**TABLE E - 64**  
**Noncarcinogenic Chronic Daily Intake**  
**Reasonable Maximum Exposure by an On-Site Resident at SSA**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	4.7E-08	2.3E-11	3.8E-07
1,1-DICHLOROETHENE	ND	ND	ND
4-METHYL-2-PENTANONE	3.0E-06	8.9E-08	1.5E-06
ACETONE	ND	ND	ND
BENZENE	6.2E-07	3.0E-10	2.7E-06
CHLOROBENZENE	2.8E-05	8.1E-07	3.1E-05
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	6.6E-07	1.9E-08	1.0E-06
M,P-XYLENE	3.7E-08	1.1E-09	5.0E-08
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	2.2E-08	6.4E-10	2.4E-08
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	2.6E-07	7.6E-09	6.8E-07
TRICHLOROETHENE	1.1E-08	3.2E-10	5.4E-08
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	1.8E-07	1.8E-08	1.5E-08
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	ND	ND	ND
BARIUM	6.2E-04	6.1E-06	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	4.7E-02	4.6E-04	ND
LEAD	4.0E-05	3.9E-07	ND
MANGANESE	2.4E-04	2.4E-06	ND
MERCURY	ND	ND	ND
NICKEL	5.8E-04	5.7E-06	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	7.3E-04	7.1E-06	ND
TOTAL DOSE:	4.97E-02	4.86E-04	3.75E-05

ND = Not detected

**APPENDIX F**  
**ESTIMATED CANCER RISKS AND**  
**NONCANCER HAZARD QUOTIENT VALUES**

**TABLE F - 1**  
**Carcinogenic Risks**  
**Central Tendency Exposure by an On-Site Industrial Worker at ASP1**

<u>CHEMICALS</u>	<u>INGEST SOIL</u>	<u>DERMAL CONTACT</u>	<u>INHALE VAPOR</u>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	ND	ND	ND
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	ND	ND	ND
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	ND	ND	ND
TRICHLOROETHENE	ND	ND	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	3.5E-07	4.7E-08	ND
BARIUM	ND	ND	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	ND	ND	ND
LEAD	ND	ND	ND
MANGANESE	ND	ND	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	ND	ND	ND
<b>TOTAL RISK:</b>	<b>3.46E-07</b>	<b>4.66E-08</b>	<b>0.00E+00</b>

ND = Not detected

**TABLE F - 2**  
**Carcinogenic Risks**  
**Reasonable Maximum Exposure by an On-Site Industrial Worker at ASP1**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	ND	ND	ND
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	ND	ND	ND
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	ND	ND	ND
TRICHLOROETHENE	ND	ND	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	5.8E-06	9.0E-07	ND
BARIUM	ND	ND	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	ND	ND	ND
LEAD	ND	ND	ND
MANGANESE	ND	ND	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	ND	ND	ND
<b>TOTAL RISK:</b>	<b>5.77E-06</b>	<b>9.01E-07</b>	<b>0.00E+00</b>

ND = Not detected

**TABLE F - 3**  
**Carcinogenic Risks**  
**Central Tendency Exposure by an On-Site Resident at ASP1**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	ND	ND	ND
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	ND	ND	ND
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	ND	ND	ND
TRICHLOROETHENE	ND	ND	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	5.5E-06	1.5E-07	ND
BARIUM	ND	ND	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	ND	ND	ND
LEAD	ND	ND	ND
MANGANESE	ND	ND	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	ND	ND	ND
TOTAL RISK:	5.53E-06	1.49E-07	0.00E+00

ND = Not detected

**TABLE F - 4**  
**Carcinogenic Risks**  
**Reasonable Maximum Exposure by an On-Site Resident at ASP1**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	ND	ND	ND
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	ND	ND	ND
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	ND	ND	ND
TRICHLOROETHENE	ND	ND	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	5.2E-05	1.7E-06	ND
BARIUM	ND	ND	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	ND	ND	ND
LEAD	ND	ND	ND
MANGANESE	ND	ND	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	ND	ND	ND
TOTAL RISK:	5.17E-05	1.70E-06	0.00E+00

ND = Not detected

**TABLE F - 5**  
**Noncarcinogenic Hazard Index**  
**Central Tendency Exposure by an On-Site Industrial Worker at ASP1**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	ND	ND	ND
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	ND	ND	ND
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	ND	ND	ND
TRICHLOROETHENE	ND	ND	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	3.4E-07	1.7E-07	1.8E-06
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	1.1E-02	1.5E-03	ND
BARIUM	7.3E-04	4.2E-04	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	1.2E-02	3.3E-03	ND
LEAD	ND	ND	ND
MANGANESE	6.8E-04	5.4E-04	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	4.4E-03	5.9E-03	ND
TOTAL HI:	2.88E-02	1.15E-02	1.77E-06

ND = Not detected

**TABLE F - 6**  
**Noncarcinogenic Hazard Index**  
**Reasonable Maximum Exposure by an On-Site Industrial Worker at ASP1**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	ND	ND	ND
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	ND	ND	ND
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	ND	ND	ND
TRICHLOROETHENE	ND	ND	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	1.1E-06	6.5E-07	2.6E-06
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBs</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	3.6E-02	5.6E-03	ND
BARIUM	2.4E-03	1.6E-03	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	4.1E-02	1.3E-02	ND
LEAD	ND	ND	ND
MANGANESE	2.3E-03	2.1E-03	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	1.5E-02	2.3E-02	ND
TOTAL HI:	9.60E-02	4.46E-02	2.64E-06

ND = Not detected

**TABLE F - 7**  
**Noncarcinogenic Hazard Index**  
**Central Tendency Exposure by an On-Site Resident at ASP1**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	ND	ND	ND
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	ND	ND	ND
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	ND	ND	ND
TRICHLOROETHENE	ND	ND	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	3.0E-06	3.0E-07	5.8E-06
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	9.6E-02	2.6E-03	ND
BARIUM	6.5E-03	7.5E-04	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	1.1E-01	5.8E-03	ND
LEAD	ND	ND	ND
MANGANESE	6.0E-03	9.6E-04	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	3.9E-02	1.0E-02	ND
TOTAL HI:	2.56E-01	2.05E-02	5.77E-06

ND = Not detected

**TABLE F - 8**  
**Noncarcinogenic Hazard Index**  
**Reasonable Maximum Exposure by an On-Site Resident at ASP1**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	ND	ND	ND
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	ND	ND	ND
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	ND	ND	ND
TRICHLOROETHENE	ND	ND	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	8.4E-06	1.0E-06	4.6E-06
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLO-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	2.7E-01	8.8E-03	ND
BARIUM	1.8E-02	2.5E-03	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	3.0E-01	2.0E-02	ND
LEAD	ND	ND	ND
MANGANESE	1.7E-02	3.3E-03	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	1.1E-01	3.6E-02	ND
TOTAL HI:	7.17E-01	7.01E-02	4.61E-06

ND = Not detected

**TABLE F - 9**  
**Carcinogenic Risks**  
**Central Tendency Exposure by an On-Site Industrial Worker at BWA**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	4.0E-07	8.1E-10	2.4E-05
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	1.0E-08	2.1E-11	3.8E-07
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	1.9E-07	2.3E-08	2.0E-07
TOLUENE	ND	ND	ND
TRICHLOROETHENE	2.3E-08	2.8E-09	5.3E-07
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	1.6E-08	7.3E-09	3.6E-08
3,3'-DICHLOROBENZIDINE	5.7E-11	2.3E-11	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	1.4E-09	1.0E-09	2.4E-14
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	1.7E-09	4.6E-10	5.5E-12
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	2.4E-08	3.2E-09	ND
BARIUM	ND	ND	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	ND	ND	ND
LEAD	ND	ND	ND
MANGANESE	ND	ND	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	ND	ND	ND
<b>TOTAL RISK:</b>	<b>6.70E-07</b>	<b>3.84E-08</b>	<b>2.48E-05</b>

ND = Not detected

**TABLE F - 10**  
**Carcinogenic Risks**  
**Reasonable Maximum Exposure by an On-Site Industrial Worker at BWA**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	6.7E-06	1.6E-08	1.8E-04
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	1.7E-07	4.1E-10	2.8E-06
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	3.2E-06	4.4E-07	1.5E-06
TOLUENE	ND	ND	ND
TRICHLOROETHENE	3.8E-07	5.4E-08	3.9E-06
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	2.7E-07	1.4E-07	2.7E-07
3,3'-DICHLOROBENZIDINE	9.4E-10	4.4E-10	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	2.3E-08	1.9E-08	1.8E-13
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	2.9E-08	8.9E-09	4.1E-11
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	3.9E-07	6.1E-08	ND
BARIUM	ND	ND	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	ND	ND	ND
LEAD	ND	ND	ND
MANGANESE	ND	ND	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	ND	ND	ND
<b>TOTAL RISK:</b>	<b>1.12E-05</b>	<b>7.43E-07</b>	<b>1.85E-04</b>

ND = Not detected

**TABLE F - 11**  
**Carcinogenic Risks**  
**Central Tendency Exposure by an On-Site Resident at BWA**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	6.4E-06	2.6E-09	1.4E-04
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	1.7E-07	6.8E-11	2.2E-06
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	3.1E-06	7.3E-08	1.2E-06
TOLUENE	ND	ND	ND
TRICHLOROETHENE	3.7E-07	8.9E-09	3.1E-06
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	2.6E-07	2.3E-08	2.1E-07
3,3'-DICHLOROBENZIDINE	9.1E-10	7.3E-11	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	2.2E-08	3.2E-09	1.4E-13
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	2.7E-08	1.5E-09	3.3E-11
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	3.8E-07	1.0E-08	ND
BARIUM	ND	ND	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	ND	ND	ND
LEAD	ND	ND	ND
MANGANESE	ND	ND	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	ND	ND	ND
<b>TOTAL RISK:</b>	<b>1.07E-05</b>	<b>1.23E-07</b>	<b>1.46E-04</b>

ND = Not detected

**TABLE F - 12**  
**Carcinogenic Risks**  
**Reasonable Maximum Exposure by an On-Site Resident at BWA**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	6.0E-05	2.9E-08	3.7E-04
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	1.5E-06	7.8E-10	5.9E-06
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	2.8E-05	8.3E-07	3.1E-06
TOLUENE	ND	ND	ND
TRICHLOROETHENE	3.4E-06	1.0E-07	8.2E-06
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	2.4E-06	2.6E-07	5.6E-07
3,3'-DICHLOROBENZIDINE	8.5E-09	8.2E-10	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	2.1E-07	3.7E-08	3.7E-13
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	2.6E-07	1.7E-08	8.7E-11
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	3.5E-06	1.2E-07	ND
BARIUM	ND	ND	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	ND	ND	ND
LEAD	ND	ND	ND
MANGANESE	ND	ND	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	ND	ND	ND
<b>TOTAL RISK:</b>	<b>1.00E-04</b>	<b>1.40E-06</b>	<b>3.87E-04</b>

ND = Not detected

**TABLE F - 13**  
**Noncarcinogenic Hazard Index**  
**Central Tendency Exposure by an On-Site Industrial Worker at BWA**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	8.1E-03	1.8E-05	3.9E-02
1,1-DICHLOROETHENE	1.0E-03	2.1E-06	ND
4-METHYL-2-PENTANONE	1.7E-04	2.6E-05	3.0E-03
ACETONE	ND	ND	ND
BENZENE	1.7E-03	3.4E-06	1.1E-01
CHLOROBENZENE	4.9E-03	1.9E-03	1.9E-01
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	7.8E-05	1.1E-05	3.5E-04
M,P-XYLENE	1.6E-05	1.9E-06	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	7.0E-06	8.4E-07	ND
TETRACHLOROETHENE	5.1E-03	6.2E-04	9.9E-03
TOLUENE	6.1E-04	9.1E-05	2.4E-02
TRICHLOROETHENE	4.9E-03	5.9E-04	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	4.4E-03	4.2E-03	5.4E-04
1,3-DICHLOROBENZENE	9.3E-05	4.1E-05	4.0E-03
1,4-DICHLOROBENZENE	3.2E-04	1.4E-04	1.0E-04
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	1.2E-05	5.3E-06	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	6.9E-05	5.0E-05	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	5.4E-05	2.7E-05	1.7E-04
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	7.3E-04	9.9E-05	ND
BARIUM	4.6E-04	2.6E-04	ND
CADMIUM	1.8E-05	1.4E-05	ND
COPPER	ND	ND	ND
IRON	6.8E-03	1.8E-03	ND
LEAD	ND	ND	ND
MANGANESE	7.2E-04	5.8E-04	ND
MERCURY	ND	ND	ND
NICKEL	6.0E-04	8.9E-05	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	4.8E-03	6.4E-03	ND
TOTAL HI:	4.58E-02	1.70E-02	3.78E-01

ND = Not detected

**TABLE F - 14**  
**Noncarcinogenic Hazard Index**  
**Reasonable Maximum Exposure by an On-Site Industrial Worker at BWA**

<u>CHEMICALS</u>	<u>INGEST SOIL</u>	<u>DERMAL CONTACT</u>	<u>INHALE VAPOR</u>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	2.7E-02	6.9E-05	5.8E-02
1,1-DICHLOROETHENE	3.5E-03	8.1E-06	ND
4-METHYL-2-PENTANONE	5.8E-04	1.0E-04	4.5E-03
ACETONE	ND	ND	ND
BENZENE	5.5E-03	1.3E-05	1.6E-01
CHLOROBENZENE	1.6E-02	7.4E-03	2.8E-01
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	2.6E-04	4.4E-05	5.2E-04
M,P-XYLENE	5.4E-05	7.5E-06	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	2.3E-05	3.2E-06	ND
TETRACHLOROETHENE	1.7E-02	2.4E-03	1.5E-02
TOLUENE	2.0E-03	3.5E-04	3.6E-02
TRICHLOROETHENE	1.6E-02	2.3E-03	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	1.5E-02	1.6E-02	8.1E-04
1,3-DICHLOROBENZENE	3.1E-04	1.6E-04	6.0E-03
1,4-DICHLOROBENZENE	1.1E-03	5.5E-04	1.5E-04
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	4.0E-05	2.1E-05	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	2.3E-04	1.9E-04	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	1.8E-04	1.0E-04	2.5E-04
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	2.4E-03	3.8E-04	ND
BARIUM	1.5E-03	1.0E-03	ND
CADMIUM	5.9E-05	5.4E-05	ND
COPPER	ND	ND	ND
IRON	2.3E-02	7.1E-03	ND
LEAD	ND	ND	ND
MANGANESE	2.4E-03	2.2E-03	ND
MERCURY	ND	ND	ND
NICKEL	2.0E-03	3.4E-04	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	1.6E-02	2.5E-02	ND
TOTAL HI:	1.53E-01	6.58E-02	5.63E-01

ND = Not detected

**TABLE F - 15**  
**Noncarcinogenic Hazard Index**  
**Central Tendency Exposure by an On-Site Resident at BWA**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	7.2E-02	3.2E-05	1.3E-01
1,1-DICHLOROETHENE	9.3E-03	3.7E-06	ND
4-METHYL-2-PENTANONE	1.5E-03	4.7E-05	9.8E-03
ACETONE	ND	ND	ND
BENZENE	1.5E-02	6.1E-06	3.5E-01
CHLOROBENZENE	4.4E-02	3.4E-03	6.2E-01
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	6.9E-04	2.0E-05	1.1E-03
M,P-XYLENE	1.4E-04	3.4E-06	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	6.2E-05	1.5E-06	ND
TETRACHLOROETHENE	4.6E-02	1.1E-03	3.2E-02
TOLUENE	5.4E-03	1.6E-04	7.8E-02
TRICHLOROETHENE	4.3E-02	1.0E-03	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	3.9E-02	7.5E-03	1.8E-03
1,3-DICHLOROBENZENE	8.3E-04	7.3E-05	1.3E-02
1,4-DICHLOROBENZENE	2.8E-03	2.5E-04	3.3E-04
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	1.1E-04	9.5E-06	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	6.1E-04	8.9E-05	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	4.8E-04	4.8E-05	5.4E-04
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBs</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	6.5E-03	1.8E-04	ND
BARIUM	4.1E-03	4.7E-04	ND
CADMIUM	1.6E-04	2.5E-05	ND
COPPER	ND	ND	ND
IRON	6.1E-02	3.2E-03	ND
LEAD	ND	ND	ND
MANGANESE	6.4E-03	1.0E-03	ND
MERCURY	ND	ND	ND
NICKEL	5.3E-03	1.6E-04	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	4.3E-02	1.1E-02	ND
TOTAL HI:	4.06E-01	3.03E-02	1.23E+00

ND = Not detected

**TABLE F - 16**  
**Noncarcinogenic Hazard Index**  
**Reasonable Maximum Exposure by an On-Site Resident at BWA**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	2.0E-01	1.1E-04	1.0E-01
1,1-DICHLOROETHENE	2.6E-02	1.3E-05	ND
4-METHYL-2-PENTANONE	4.3E-03	1.6E-04	7.9E-03
ACETONE	ND	ND	ND
BENZENE	4.1E-02	2.1E-05	2.8E-01
CHLOROBENZENE	1.2E-01	1.2E-02	4.9E-01
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	1.9E-03	6.9E-05	9.1E-04
M,P-XYLENE	4.0E-04	1.2E-05	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	1.7E-04	5.1E-06	ND
TETRACHLOROETHENE	1.3E-01	3.7E-03	2.6E-02
TOLUENE	1.5E-02	5.5E-04	6.2E-02
TRICHLOROETHENE	1.2E-01	3.6E-03	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	1.1E-01	2.5E-02	1.4E-03
1,3-DICHLOROBENZENE	2.3E-03	2.5E-04	1.0E-02
1,4-DICHLOROBENZENE	7.9E-03	8.6E-04	2.6E-04
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	3.0E-04	3.2E-05	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	1.7E-03	3.0E-04	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	1.4E-03	1.6E-04	4.3E-04
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	1.8E-02	6.0E-04	ND
BARIUM	1.1E-02	1.6E-03	ND
CADMIUM	4.4E-04	8.6E-05	ND
COPPER	ND	ND	ND
IRON	1.7E-01	1.1E-02	ND
LEAD	ND	ND	ND
MANGANESE	1.8E-02	3.5E-03	ND
MERCURY	ND	ND	ND
NICKEL	1.5E-02	5.4E-04	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	1.2E-01	3.9E-02	ND
TOTAL HI:	1.14E+00	1.03E-01	9.82E-01

ND = Not detected

**TABLE F - 17**  
**Carcinogenic Risks**  
**Central Tendency Exposure by an On-Site Industrial Worker at NDA**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	5.0E-07	1.0E-09	6.5E-06
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	7.0E-07	1.4E-09	5.7E-06
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	6.0E-05	7.2E-06	1.4E-05
TOLUENE	ND	ND	ND
TRICHLOROETHENE	1.6E-06	1.9E-07	8.1E-06
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	1.5E-07	6.7E-08	7.4E-08
3,3'-DICHLOROBENZIDINE	1.1E-08	4.5E-09	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	7.8E-07	3.1E-07	2.8E-08
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	ND	ND	ND
BARIUM	ND	ND	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	ND	ND	ND
LEAD	ND	ND	ND
MANGANESE	ND	ND	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	ND	ND	ND
<b>TOTAL RISK:</b>	<b>6.37E-05</b>	<b>7.78E-06</b>	<b>3.41E-05</b>

ND = Not detected

**TABLE F - 18**  
**Carcinogenic Risks**  
**Reasonable Maximum Exposure by an On-Site Industrial Worker at NDA**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	8.3E-06	1.9E-08	4.8E-05
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	1.2E-05	2.8E-08	4.2E-05
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	1.0E-03	1.4E-04	1.0E-04
TOLUENE	ND	ND	ND
TRICHLOROETHENE	2.7E-05	3.7E-06	6.1E-05
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	2.5E-06	1.3E-06	5.5E-07
3,3'-DICHLOROBENZIDINE	1.9E-07	8.8E-08	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	1.3E-05	6.1E-06	2.1E-07
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	ND	ND	ND
BARIUM	ND	ND	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	ND	ND	ND
LEAD	ND	ND	ND
MANGANESE	ND	ND	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	ND	ND	ND
<b>TOTAL RISK:</b>	<b>1.06E-03</b>	<b>1.50E-04</b>	<b>2.54E-04</b>

ND = Not detected

**TABLE F - 19**  
**Carcinogenic Risks**  
**Central Tendency Exposure by an On-Site Resident at NDA**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	8.0E-06	3.2E-09	3.8E-05
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	1.1E-05	4.6E-09	3.3E-05
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	9.6E-04	2.3E-05	8.0E-05
TOLUENE	ND	ND	ND
TRICHLOROETHENE	2.6E-05	6.2E-07	4.8E-05
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	2.4E-06	2.1E-07	4.3E-07
3,3'-DICHLOROBENZIDINE	1.8E-07	1.5E-08	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	1.3E-05	1.0E-06	1.6E-07
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	ND	ND	ND
BARIUM	ND	ND	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	ND	ND	ND
LEAD	ND	ND	ND
MANGANESE	ND	ND	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	ND	ND	ND
<b>TOTAL RISK:</b>	1.02E-03	2.49E-05	2.00E-04

ND = Not detected

**TABLE F - 20**  
**Carcinogenic Risks**  
**Reasonable Maximum Exposure by an On-Site Resident at NDA**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	7.5E-05	3.7E-08	1.0E-04
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	1.0E-04	5.3E-08	8.8E-05
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	9.0E-03	2.6E-04	2.1E-04
TOLUENE	ND	ND	ND
TRICHLOROETHENE	2.4E-04	7.1E-06	1.3E-04
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	2.3E-05	2.4E-06	1.1E-06
3,3'-DICHLOROBENZIDINE	1.7E-06	1.6E-07	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	1.2E-04	1.1E-05	4.4E-07
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	ND	ND	ND
BARIUM	ND	ND	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	ND	ND	ND
LEAD	ND	ND	ND
MANGANESE	ND	ND	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	ND	ND	ND
<b>TOTAL RISK:</b>	<b>9.52E-03</b>	<b>2.83E-04</b>	<b>5.32E-04</b>

ND = Not detected

**TABLE F - 21**  
**Noncarcinogenic Hazard Index**  
**Central Tendency Exposure by an On-Site Industrial Worker at NDA**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	4.8E-01	1.1E-03	5.1E-01
1,1-DICHLOROETHENE	1.3E-03	2.6E-06	ND
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	6.5E-03	1.6E-05	ND
BENZENE	1.1E-01	2.3E-04	1.6E+00
CHLOROBENZENE	2.0E+00	7.7E-01	1.7E+01
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	1.4E-02	2.0E-03	1.4E-02
M,P-XYLENE	2.9E-03	3.4E-04	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	1.2E-03	1.4E-04	ND
TETRACHLOROETHENE	1.6E+00	1.9E-01	6.9E-01
TOLUENE	1.7E-01	2.5E-02	1.5E+00
TRICHLOROETHENE	3.4E-01	4.1E-02	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	3.5E-04	3.4E-04	9.6E-06
1,3-DICHLOROBENZENE	4.9E-03	2.2E-03	4.6E-02
1,4-DICHLOROBENZENE	2.9E-03	1.3E-03	2.0E-04
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	1.1E-04	5.5E-05	7.4E-05
NITROBENZENE	1.2E-03	4.8E-04	1.9E-05
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	3.6E-03	1.4E-02	ND
ARSENIC	ND	ND	ND
BARIUM	3.1E-04	1.8E-04	ND
CADMIUM	1.2E-03	9.3E-04	ND
COPPER	ND	ND	ND
IRON	1.2E-02	3.1E-03	ND
LEAD	ND	ND	ND
MANGANESE	2.5E-04	2.0E-04	ND
MERCURY	ND	ND	ND
NICKEL	1.8E-03	2.6E-04	ND
SELENIUM	ND	ND	ND
THALLIUM	1.1E-01	2.9E-02	ND
VANADIUM	6.1E-03	8.1E-03	ND
TOTAL HI:	4.87E+00	1.09E+00	2.11E+01

ND = Not detected

**TABLE F - 22**  
**Noncarcinogenic Hazard Index**  
**Reasonable Maximum Exposure by an On-Site Industrial Worker at NDA**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	1.6E+00	4.1E-03	7.6E-01
1,1-DICHLOROETHENE	4.3E-03	1.0E-05	ND
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	2.2E-02	6.0E-05	ND
BENZENE	3.8E-01	9.0E-04	2.4E+00
CHLOROBENZENE	6.6E+00	3.0E+00	2.5E+01
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	4.5E-02	7.7E-03	2.0E-02
M,P-XYLENE	9.5E-03	1.3E-03	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	3.9E-03	5.4E-04	ND
TETRACHLOROETHENE	5.4E+00	7.5E-01	1.0E+00
TOLUENE	5.6E-01	9.8E-02	2.2E+00
TRICHLOROETHENE	1.1E+00	1.6E-01	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	1.2E-03	1.3E-03	1.4E-05
1,3-DICHLOROBENZENE	1.6E-02	8.4E-03	6.9E-02
1,4-DICHLOROBENZENE	9.8E-03	5.0E-03	3.0E-04
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	3.7E-04	2.1E-04	1.1E-04
NITROBENZENE	3.9E-03	1.9E-03	2.9E-05
<b>III. PESTICIDES/ PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	1.2E-02	5.5E-02	ND
ARSENIC	ND	ND	ND
BARIUM	1.0E-03	6.9E-04	ND
CADMIUM	3.9E-03	3.6E-03	ND
COPPER	ND	ND	ND
IRON	3.9E-02	1.2E-02	ND
LEAD	ND	ND	ND
MANGANESE	8.3E-04	7.7E-04	ND
MERCURY	ND	ND	ND
NICKEL	5.9E-03	1.0E-03	ND
SELENIUM	ND	ND	ND
THALLIUM	3.6E-01	1.1E-01	ND
VANADIUM	2.0E-02	3.1E-02	ND
TOTAL HI:	1.62E+01	4.22E+00	3.15E+01

ND = Not detected

**TABLE F - 23**  
**Noncarcinogenic Hazard Index**  
**Central Tendency Exposure by an On-Site Resident at NDA**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	4.2E+00	1.9E-03	1.7E+00
1,1-DICHLOROETHENE	1.2E-02	4.6E-06	ND
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	5.7E-02	2.8E-05	ND
BENZENE	1.0E+00	4.1E-04	5.2E+00
CHLOROBENZENE	1.8E+01	1.4E+00	5.5E+01
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	1.2E-01	3.6E-03	4.4E-02
M,P-XYLENE	2.5E-02	6.1E-04	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	1.0E-02	2.5E-04	ND
TETRACHLOROETHENE	1.4E+01	3.4E-01	2.2E+00
TOLUENE	1.5E+00	4.5E-02	4.8E+00
TRICHLOROETHENE	3.0E+00	7.3E-02	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	3.1E-03	6.0E-04	3.1E-05
1,3-DICHLOROBENZENE	4.3E-02	3.9E-03	1.5E-01
1,4-DICHLOROBENZENE	2.6E-02	2.3E-03	6.7E-04
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	9.8E-04	9.8E-05	2.4E-04
NITROBENZENE	1.0E-02	8.6E-04	6.3E-05
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	3.2E-02	2.5E-02	ND
ARSENIC	ND	ND	ND
BARIUM	2.8E-03	3.2E-04	ND
CADMIUM	1.0E-02	1.6E-03	ND
COPPER	ND	ND	ND
IRON	1.0E-01	5.6E-03	ND
LEAD	ND	ND	ND
MANGANESE	2.2E-03	3.6E-04	ND
MERCURY	ND	ND	ND
NICKEL	1.6E-02	4.6E-04	ND
SELENIUM	ND	ND	ND
THALLIUM	9.7E-01	5.2E-02	ND
VANADIUM	5.4E-02	1.4E-02	ND
TOTAL HI:	4.32E+01	1.94E+00	6.87E+01

ND = Not detected

**TABLE F - 24**  
**Noncarcinogenic Hazard Index**  
**Reasonable Maximum Exposure by an On-Site Resident at NDA**

<u>CHEMICALS</u>	<u>INGEST SOIL</u>	<u>DERMAL CONTACT</u>	<u>INHALE VAPOR</u>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	1.2E+01	6.4E-03	1.3E+00
1,1-DICHLOROETHENE	3.2E-02	1.6E-05	ND
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	1.6E-01	9.4E-05	ND
BENZENE	2.8E+00	1.4E-03	4.2E+00
CHLOROBENZENE	4.9E+01	4.7E+00	4.4E+01
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	3.4E-01	1.2E-02	3.5E-02
M,P-XYLENE	7.1E-02	2.1E-03	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	2.9E-02	8.6E-04	ND
TETRACHLOROETHENE	4.0E+01	1.2E+00	1.8E+00
TOLUENE	4.2E+00	1.5E-01	3.8E+00
TRICHLOROETHENE	8.5E+00	2.5E-01	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	8.8E-03	2.0E-03	2.5E-05
1,3-DICHLOROBENZENE	1.2E-01	1.3E-02	1.2E-01
1,4-DICHLOROBENZENE	7.3E-02	7.9E-03	5.3E-04
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	2.7E-03	3.3E-04	1.9E-04
NITROBENZENE	2.9E-02	2.9E-03	5.0E-05
<b>III. PESTICIDES/ PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	8.9E-02	8.6E-02	ND
ARSENIC	ND	ND	ND
BARIUM	7.8E-03	1.1E-03	ND
CADMIUM	2.9E-02	5.6E-03	ND
COPPER	ND	ND	ND
IRON	2.9E-01	1.9E-02	ND
LEAD	ND	ND	ND
MANGANESE	6.2E-03	1.2E-03	ND
MERCURY	ND	ND	ND
NICKEL	4.4E-02	1.6E-03	ND
SELENIUM	ND	ND	ND
THALLIUM	2.7E+00	1.8E-01	ND
VANADIUM	1.5E-01	4.9E-02	ND
TOTAL HI:	1.21E+02	6.63E+00	5.49E+01

ND = Not detected

**TABLE F - 25**  
**Carcinogenic Risks**  
**Central Tendency Exposure by an On-Site Industrial Worker at POND01**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	1.1E-09	2.3E-12	8.8E-08
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	5.8E-11	1.2E-13	2.8E-09
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	2.2E-11	4.6E-14	3.4E-10
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	ND	ND	ND
TRICHLOROETHENE	3.8E-12	4.6E-13	1.2E-10
VINYL CHLORIDE	3.2E-09	6.4E-12	3.1E-07
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	5.4E-10	3.9E-10	6.9E-15
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	5.2E-08	7.0E-09	ND
BARIUM	ND	ND	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	ND	ND	ND
LEAD	ND	ND	ND
MANGANESE	ND	ND	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	ND	ND	ND
<b>TOTAL RISK:</b>	<b>5.68E-08</b>	<b>7.40E-09</b>	<b>4.04E-07</b>

ND = Not detected

**TABLE F - 26**  
**Carcinogenic Risks**  
**Reasonable Maximum Exposure by an On-Site Industrial Worker at POND01**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	1.9E-08	4.4E-11	6.6E-07
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	9.6E-10	2.3E-12	2.1E-08
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	3.7E-10	9.0E-13	2.5E-09
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	ND	ND	ND
TRICHLOROETHENE	6.3E-11	8.8E-12	8.6E-10
VINYL CHLORIDE	5.3E-08	1.2E-10	2.3E-06
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	9.1E-09	7.6E-09	5.2E-14
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	8.6E-07	1.4E-07	ND
BARIUM	ND	ND	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	ND	ND	ND
LEAD	ND	ND	ND
MANGANESE	ND	ND	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	ND	ND	ND
<b>TOTAL RISK:</b>	<b>9.47E-07</b>	<b>1.43E-07</b>	<b>3.01E-06</b>

ND = Not detected

**TABLE F - 27**  
**Carcinogenic Risks**  
**Central Tendency Exposure by an On-Site Resident at POND01**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	1.8E-08	7.3E-12	5.2E-07
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	9.2E-10	3.8E-13	1.6E-08
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	3.5E-10	1.5E-13	2.0E-09
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	ND	ND	ND
TRICHLOROETHENE	6.1E-11	1.5E-12	6.8E-10
VINYL CHLORIDE	5.1E-08	2.0E-11	1.8E-06
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	8.7E-09	1.3E-09	4.1E-14
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	8.3E-07	2.2E-08	ND
BARIUM	ND	ND	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	ND	ND	ND
LEAD	ND	ND	ND
MANGANESE	ND	ND	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	ND	ND	ND
<b>TOTAL RISK:</b>	<b>9.09E-07</b>	<b>2.37E-08</b>	<b>2.37E-06</b>

ND = Not detected

**TABLE F - 28**  
**Carcinogenic Risks**  
**Reasonable Maximum Exposure by an On-Site Resident at POND01**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	1.7E-07	8.3E-11	1.4E-06
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	8.6E-09	4.3E-12	4.4E-08
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	3.3E-09	1.7E-12	5.3E-09
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	ND	ND	ND
TRICHLOROETHENE	5.7E-10	1.7E-11	1.8E-09
VINYL CHLORIDE	4.8E-07	2.3E-10	4.9E-06
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	8.1E-08	1.4E-08	1.1E-13
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	7.8E-06	2.5E-07	ND
BARIUM	ND	ND	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	ND	ND	ND
LEAD	ND	ND	ND
MANGANESE	ND	ND	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	ND	ND	ND
<b>TOTAL RISK:</b>	<b>8.49E-06</b>	<b>2.69E-07</b>	<b>6.30E-06</b>

ND = Not detected

**TABLE F - 29**  
**Noncarcinogenic Hazard Index**  
**Central Tendency Exposure by an On-Site Industrial Worker at POND01**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	1.5E-05	3.3E-08	9.4E-05
1,1-DICHLOROETHENE	2.9E-06	5.9E-09	ND
4-METHYL-2-PENTANONE	1.4E-05	2.0E-06	3.1E-04
ACETONE	ND	ND	ND
BENZENE	9.3E-06	1.9E-08	8.0E-04
CHLOROBENZENE	3.5E-05	1.4E-05	1.8E-03
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	2.1E-07	3.0E-08	1.2E-06
M,P-XYLENE	1.5E-10	1.8E-11	ND
METHYLENE CHLORIDE	6.8E-07	1.4E-09	3.4E-06
O-XYLENE	2.2E-08	2.6E-09	ND
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	6.5E-06	9.7E-07	3.4E-04
TRICHLOROETHENE	8.1E-07	9.7E-08	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	2.3E-07	2.2E-07	3.8E-08
1,3-DICHLOROBENZENE	1.7E-07	7.4E-08	9.5E-06
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	1.4E-06	6.1E-07	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	2.7E-05	2.0E-05	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBs</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	1.6E-03	2.2E-04	ND
BARIUM	3.6E-04	2.0E-04	ND
CADMIUM	5.9E-05	4.7E-05	ND
COPPER	ND	ND	ND
IRON	6.8E-03	1.8E-03	ND
LEAD	ND	ND	ND
MANGANESE	4.2E-04	3.3E-04	ND
MERCURY	ND	ND	ND
NICKEL	2.3E-05	3.5E-06	ND
SELENIUM	2.8E-05	1.9E-06	ND
THALLIUM	ND	ND	ND
VANADIUM	4.6E-03	6.2E-03	ND
TOTAL HI:	1.41E-02	8.82E-03	3.34E-03

ND = Not detected

**TABLE F - 30**  
**Noncarcinogenic Hazard Index**  
**Reasonable Maximum Exposure by an On-Site Industrial Worker at POND01**

<u>CHEMICALS</u>	<u>INGEST SOIL</u>	<u>DERMAL CONTACT</u>	<u>INHALE VAPOR</u>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	4.9E-05	1.3E-07	1.4E-04
1,1-DICHLOROETHENE	9.8E-06	2.3E-08	ND
4-METHYL-2-PENTANONE	4.5E-05	7.9E-06	4.6E-04
ACETONE	ND	ND	ND
BENZENE	3.1E-05	7.4E-08	1.2E-03
CHLOROBENZENE	1.2E-04	5.3E-05	2.7E-03
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	6.8E-07	1.2E-07	1.8E-06
M,P-XYLENE	4.9E-10	6.8E-11	ND
METHYLENE CHLORIDE	2.3E-06	5.6E-09	5.0E-06
O-XYLENE	7.3E-08	1.0E-08	ND
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	2.2E-05	3.7E-06	5.0E-04
TRICHLOROETHENE	2.7E-06	3.7E-07	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	7.8E-07	8.6E-07	5.7E-08
1,3-DICHLOROBENZENE	5.5E-07	2.9E-07	1.4E-05
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	4.6E-06	2.4E-06	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	9.1E-05	7.6E-05	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBs</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	5.4E-03	8.4E-04	ND
BARIUM	1.2E-03	7.9E-04	ND
CADMIUM	2.0E-04	1.8E-04	ND
COPPER	ND	ND	ND
IRON	2.3E-02	7.1E-03	ND
LEAD	ND	ND	ND
MANGANESE	1.4E-03	1.3E-03	ND
MERCURY	ND	ND	ND
NICKEL	7.8E-05	1.3E-05	ND
SELENIUM	9.3E-05	7.2E-06	ND
THALLIUM	ND	ND	ND
VANADIUM	1.5E-02	2.4E-02	ND
TOTAL HI:	4.69E-02	3.41E-02	4.98E-03

ND = Not detected

**TABLE F - 31**  
**Noncarcinogenic Hazard Index**  
**Central Tendency Exposure by an On-Site Resident at POND01**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	1.3E-04	5.8E-08	3.1E-04
1,1-DICHLOROETHENE	2.6E-05	1.0E-08	ND
4-METHYL-2-PENTANONE	1.2E-04	3.6E-06	1.0E-03
ACETONE	ND	ND	ND
BENZENE	8.3E-05	3.4E-08	2.6E-03
CHLOROBENZENE	3.1E-04	2.4E-05	5.8E-03
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	1.8E-06	5.3E-08	4.0E-06
M,P-XYLENE	1.3E-09	3.1E-11	ND
METHYLENE CHLORIDE	6.1E-06	2.6E-09	1.1E-05
O-XYLENE	2.0E-07	4.7E-09	ND
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	5.7E-05	1.7E-06	1.1E-03
TRICHLOROETHENE	7.2E-06	1.7E-07	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	2.1E-06	4.0E-07	1.2E-07
1,3-DICHLOROBENZENE	1.5E-06	1.3E-07	3.1E-05
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	1.2E-05	1.1E-06	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	2.4E-04	3.5E-05	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	1.4E-02	3.9E-04	ND
BARIUM	3.2E-03	3.6E-04	ND
CADMIUM	5.2E-04	8.4E-05	ND
COPPER	ND	ND	ND
IRON	6.1E-02	3.2E-03	ND
LEAD	ND	ND	ND
MANGANESE	3.7E-03	6.0E-04	ND
MERCURY	ND	ND	ND
NICKEL	2.1E-04	6.2E-06	ND
SELENIUM	2.5E-04	3.3E-06	ND
THALLIUM	ND	ND	ND
VANADIUM	4.1E-02	1.1E-02	ND
TOTAL HI:	1.25E-01	1.57E-02	1.09E-02

ND = Not detected

**TABLE F - 32**  
**Noncarcinogenic Hazard Index**  
**Reasonable Maximum Exposure by an On-Site Resident at POND01**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	3.7E-04	2.0E-07	2.4E-04
1,1-DICHLOROETHENE	7.3E-05	3.6E-08	ND
4-METHYL-2-PENTANONE	3.4E-04	1.2E-05	8.1E-04
ACETONE	ND	ND	ND
BENZENE	2.3E-04	1.2E-07	2.1E-03
CHLOROBENZENE	8.8E-04	8.3E-05	4.7E-03
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	5.1E-06	1.8E-07	3.2E-06
M,P-XYLENE	3.7E-09	1.1E-10	ND
METHYLENE CHLORIDE	1.7E-05	8.8E-09	8.7E-06
O-XYLENE	5.5E-07	1.6E-08	ND
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	1.6E-04	5.9E-06	8.7E-04
TRICHLOROETHENE	2.0E-05	5.9E-07	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	5.8E-06	1.4E-06	9.9E-08
1,3-DICHLOROBENZENE	4.1E-06	4.5E-07	2.5E-05
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	3.4E-05	3.7E-06	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	6.8E-04	1.2E-04	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	4.0E-02	1.3E-03	ND
BARIUM	8.9E-03	1.2E-03	ND
CADMIUM	1.5E-03	2.9E-04	ND
COPPER	ND	ND	ND
IRON	1.7E-01	1.1E-02	ND
LEAD	ND	ND	ND
MANGANESE	1.0E-02	2.0E-03	ND
MERCURY	ND	ND	ND
NICKEL	5.8E-04	2.1E-05	ND
SELENIUM	6.9E-04	1.1E-05	ND
THALLIUM	ND	ND	ND
VANADIUM	1.1E-01	3.7E-02	ND
<b>TOTAL HI:</b>	<b>3.50E-01</b>	<b>5.36E-02</b>	<b>8.69E-03</b>

ND = Not detected

**TABLE F - 33**  
**Carcinogenic Risks**  
**Central Tendency Exposure by an On-Site Industrial Worker at POND02**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	7.5E-08	1.5E-10	5.2E-06
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	1.1E-08	2.2E-11	4.6E-07
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	4.3E-08	9.1E-11	5.9E-07
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	3.4E-07	4.1E-08	4.2E-07
TOLUENE	ND	ND	ND
TRICHLOROETHENE	1.1E-08	1.3E-09	2.9E-07
VINYL CHLORIDE	1.9E-08	3.9E-11	1.7E-06
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	1.6E-08	7.3E-09	4.2E-08
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	2.9E-08	2.1E-08	3.3E-13
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	ND	ND	ND
BARIUM	ND	ND	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	ND	ND	ND
LEAD	ND	ND	ND
MANGANESE	ND	ND	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	ND	ND	ND
TOTAL RISK:	5.49E-07	7.14E-08	8.67E-06

ND = Not detected

**TABLE F - 34**  
**Carcinogenic Risks**  
**Reasonable Maximum Exposure by an On-Site Industrial Worker at POND02**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	1.3E-06	2.9E-09	3.9E-05
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	1.8E-07	4.2E-10	3.4E-06
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	7.2E-07	1.8E-09	4.4E-06
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	5.7E-06	8.0E-07	3.1E-06
TOLUENE	ND	ND	ND
TRICHLOROETHENE	1.8E-07	2.5E-08	2.2E-06
VINYL CHLORIDE	3.2E-07	7.5E-10	1.2E-05
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	2.7E-07	1.4E-07	3.1E-07
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	4.9E-07	4.1E-07	2.4E-12
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	ND	ND	ND
BARIUM	ND	ND	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	ND	ND	ND
LEAD	ND	ND	ND
MANGANESE	ND	ND	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	ND	ND	ND
<b>TOTAL RISK:</b>	<b>9.15E-06</b>	<b>1.38E-06</b>	<b>6.46E-05</b>

ND = Not detected

**TABLE F - 35**  
**Carcinogenic Risks**  
**Central Tendency Exposure by an On-Site Resident at POND02**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	1.2E-06	4.8E-10	3.0E-05
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	1.7E-07	7.0E-11	2.7E-06
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	6.9E-07	2.9E-10	3.5E-06
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	5.5E-06	1.3E-07	2.4E-06
TOLUENE	ND	ND	ND
TRICHLOROETHENE	1.8E-07	4.2E-09	1.7E-06
VINYL CHLORIDE	3.1E-07	1.2E-10	9.8E-06
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	2.6E-07	2.3E-08	2.5E-07
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	4.7E-07	6.8E-08	1.9E-12
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	ND	ND	ND
BARIUM	ND	ND	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	ND	ND	ND
LEAD	ND	ND	ND
MANGANESE	ND	ND	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	ND	ND	ND
<b>TOTAL RISK:</b>	<b>8.77E-06</b>	<b>2.29E-07</b>	<b>5.08E-05</b>

ND = Not detected

**TABLE F - 36**  
**Carcinogenic Risks**  
**Reasonable Maximum Exposure by an On-Site Resident at POND02**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	1.1E-05	5.5E-09	8.1E-05
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	1.6E-06	8.0E-10	7.1E-06
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	6.5E-06	3.3E-09	9.2E-06
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	5.1E-05	1.5E-06	6.5E-06
TOLUENE	ND	ND	ND
TRICHLOROETHENE	1.6E-06	4.8E-08	4.6E-06
VINYL CHLORIDE	2.9E-06	1.4E-09	2.6E-05
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	2.4E-06	2.6E-07	6.6E-07
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	4.4E-06	7.8E-07	5.1E-12
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	ND	ND	ND
BARIUM	ND	ND	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	ND	ND	ND
LEAD	ND	ND	ND
MANGANESE	ND	ND	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	ND	ND	ND
<b>TOTAL RISK:</b>	<b>8.20E-05</b>	<b>2.60E-06</b>	<b>1.35E-04</b>

ND = Not detected

**TABLE F - 37**  
**Noncarcinogenic Hazard Index**  
**Central Tendency Exposure by an On-Site Industrial Worker at POND02**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	1.0E-03	2.3E-06	5.8E-03
1,1-DICHLOROETHENE	2.0E-04	3.9E-07	ND
4-METHYL-2-PENTANONE	7.0E-05	1.0E-05	1.4E-03
ACETONE	4.0E-04	9.5E-07	ND
BENZENE	1.7E-03	3.5E-06	1.3E-01
CHLOROBENZENE	2.9E-03	1.1E-03	1.3E-01
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	1.5E-04	2.1E-05	7.7E-04
M,P-XYLENE	4.3E-05	5.1E-06	ND
METHYLENE CHLORIDE	1.3E-03	2.8E-06	5.8E-03
O-XYLENE	2.2E-05	2.6E-06	ND
TETRACHLOROETHENE	9.2E-03	1.1E-03	2.1E-02
TOLUENE	1.5E-04	2.2E-05	6.7E-03
TRICHLOROETHENE	2.3E-03	2.8E-04	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	8.8E-06	8.4E-06	1.3E-06
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	3.2E-04	1.4E-04	1.2E-04
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	5.9E-04	2.6E-04	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	1.5E-03	1.1E-03	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	8.8E-05	4.4E-05	3.1E-04
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	1.4E-03	5.6E-03	ND
ARSENIC	ND	ND	ND
BARIUM	3.7E-04	2.1E-04	ND
CADMIUM	1.0E-03	8.4E-04	ND
COPPER	ND	ND	ND
IRON	9.3E-03	2.5E-03	ND
LEAD	ND	ND	ND
MANGANESE	5.5E-04	4.4E-04	ND
MERCURY	ND	ND	ND
NICKEL	5.5E-04	8.1E-05	ND
SELENIUM	ND	ND	ND
THALLIUM	2.9E-02	7.6E-03	ND
VANADIUM	4.0E-03	5.4E-03	ND
TOTAL HI:	6.79E-02	2.68E-02	3.00E-01

ND = Not detected

**TABLE F - 38**  
**Noncarcinogenic Hazard Index**  
**Reasonable Maximum Exposure by an On-Site Industrial Worker at POND02**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	3.4E-03	8.8E-06	8.6E-03
1,1-DICHLOROETHENE	6.5E-04	1.5E-06	ND
4-METHYL-2-PENTANONE	2.3E-04	4.0E-05	2.1E-03
ACETONE	1.3E-03	3.7E-06	ND
BENZENE	5.7E-03	1.4E-05	1.9E-01
CHLOROBENZENE	9.5E-03	4.3E-03	1.9E-01
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	4.9E-04	8.3E-05	1.2E-03
M,P-XYLENE	1.4E-04	2.0E-05	ND
METHYLENE CHLORIDE	4.5E-03	1.1E-05	8.7E-03
O-XYLENE	7.3E-05	1.0E-05	ND
TETRACHLOROETHENE	3.1E-02	4.3E-03	3.1E-02
TOLUENE	4.9E-04	8.5E-05	1.0E-02
TRICHLOROETHENE	7.7E-03	1.1E-03	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	2.9E-05	3.2E-05	1.9E-06
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	1.1E-03	5.5E-04	1.8E-04
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	2.0E-03	1.0E-03	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	4.9E-03	4.1E-03	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	2.9E-04	1.7E-04	4.7E-04
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	4.7E-03	2.2E-02	ND
ARSENIC	ND	ND	ND
BARIUM	1.2E-03	8.1E-04	ND
CADMIUM	3.5E-03	3.2E-03	ND
COPPER	ND	ND	ND
IRON	3.1E-02	9.5E-03	ND
LEAD	ND	ND	ND
MANGANESE	1.8E-03	1.7E-03	ND
MERCURY	ND	ND	ND
NICKEL	1.8E-03	3.1E-04	ND
SELENIUM	ND	ND	ND
THALLIUM	9.6E-02	3.0E-02	ND
VANADIUM	1.3E-02	2.1E-02	ND
TOTAL HI:	2.26E-01	1.03E-01	4.47E-01

ND = Not detected

**TABLE F - 39**  
**Noncarcinogenic Hazard Index**  
**Central Tendency Exposure by an On-Site Resident at POND02**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	9.1E-03	4.1E-06	1.9E-02
1,1-DICHLOROETHENE	1.7E-03	7.0E-07	ND
4-METHYL-2-PENTANONE	6.2E-04	1.9E-05	4.6E-03
ACETONE	3.5E-03	1.7E-06	ND
BENZENE	1.5E-02	6.3E-06	4.2E-01
CHLOROBENZENE	2.5E-02	2.0E-03	4.2E-01
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	1.3E-03	3.8E-05	2.5E-03
M,P-XYLENE	3.8E-04	9.1E-06	ND
METHYLENE CHLORIDE	1.2E-02	5.0E-06	1.9E-02
O-XYLENE	2.0E-04	4.7E-06	ND
TETRACHLOROETHENE	8.2E-02	2.0E-03	6.8E-02
TOLUENE	1.3E-03	3.9E-05	2.2E-02
TRICHLOROETHENE	2.1E-02	5.0E-04	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	7.8E-05	1.5E-05	4.1E-06
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	2.8E-03	2.5E-04	3.8E-04
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	5.2E-03	4.6E-04	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	1.3E-02	1.9E-03	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	7.8E-04	7.8E-05	1.0E-03
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	1.2E-02	1.0E-02	ND
ARSENIC	ND	ND	ND
BARIUM	3.2E-03	3.7E-04	ND
CADMIUM	9.3E-03	1.5E-03	ND
COPPER	ND	ND	ND
IRON	8.2E-02	4.4E-03	ND
LEAD	ND	ND	ND
MANGANESE	4.9E-03	7.8E-04	ND
MERCURY	ND	ND	ND
NICKEL	4.8E-03	1.4E-04	ND
SELENIUM	ND	ND	ND
THALLIUM	2.5E-01	1.4E-02	ND
VANADIUM	3.6E-02	9.6E-03	ND
TOTAL HI:	6.03E-01	4.76E-02	9.77E-01

ND = Not detected

**TABLE F - 40**  
**Noncarcinogenic Hazard Index**  
**Reasonable Maximum Exposure by an On-Site Resident at POND02**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	2.6E-02	1.4E-05	1.5E-02
1,1-DICHLOROETHENE	4.9E-03	2.4E-06	ND
4-METHYL-2-PENTANONE	1.7E-03	6.3E-05	3.7E-03
ACETONE	9.9E-03	5.8E-06	ND
BENZENE	4.3E-02	2.1E-05	3.4E-01
CHLOROBENZENE	7.1E-02	6.7E-03	3.3E-01
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	3.7E-03	1.3E-04	2.0E-03
M,P-XYLENE	1.1E-03	3.1E-05	ND
METHYLENE CHLORIDE	3.3E-02	1.7E-05	1.5E-02
O-XYLENE	5.5E-04	1.6E-05	ND
TETRACHLOROETHENE	2.3E-01	6.7E-03	5.4E-02
TOLUENE	3.7E-03	1.3E-04	1.8E-02
TRICHLOROETHENE	5.8E-02	1.7E-03	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	2.2E-04	5.1E-05	3.3E-06
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	7.9E-03	8.6E-04	3.1E-04
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	1.5E-02	1.6E-03	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	3.7E-02	6.5E-03	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	2.2E-03	2.7E-04	8.2E-04
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	3.5E-02	3.4E-02	ND
ARSENIC	ND	ND	ND
BARIUM	9.1E-03	1.3E-03	ND
CADMIUM	2.6E-02	5.1E-03	ND
COPPER	ND	ND	ND
IRON	2.3E-01	1.5E-02	ND
LEAD	ND	ND	ND
MANGANESE	1.4E-02	2.7E-03	ND
MERCURY	ND	ND	ND
NICKEL	1.4E-02	4.9E-04	ND
SELENIUM	ND	ND	ND
THALLIUM	7.1E-01	4.6E-02	ND
VANADIUM	1.0E-01	3.3E-02	ND
TOTAL HI:	1.69E+00	1.63E-01	7.80E-01

ND = Not detected

**TABLE F - 41**  
**Carcinogenic Risks**  
**Central Tendency Exposure by an On-Site Industrial Worker at POND03**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	2.5E-10	5.0E-13	9.6E-09
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	5.2E-11	1.1E-13	1.0E-09
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	3.5E-07	4.3E-08	5.1E-07
TOLUENE	ND	ND	ND
TRICHLOROETHENE	2.1E-10	2.5E-11	5.5E-09
VINYL CHLORIDE	6.6E-10	1.3E-12	6.8E-08
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	5.0E-08	2.2E-08	8.8E-09
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	1.5E-08	2.0E-09	ND
BARIUM	ND	ND	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	ND	ND	ND
LEAD	ND	ND	ND
MANGANESE	ND	ND	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	ND	ND	ND
<b>TOTAL RISK:</b>	<b>4.21E-07</b>	<b>6.69E-08</b>	<b>6.05E-07</b>

ND = Not detected

**TABLE F - 42**  
**Carcinogenic Risks**  
**Reasonable Maximum Exposure by an On-Site Industrial Worker at POND03**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	4.2E-09	9.7E-12	7.2E-08
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	8.6E-10	2.1E-12	7.5E-09
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	5.9E-06	8.2E-07	3.8E-06
TOLUENE	ND	ND	ND
TRICHLOROETHENE	3.5E-09	4.8E-10	4.1E-08
VINYL CHLORIDE	1.1E-08	2.5E-11	5.1E-07
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	8.4E-07	4.3E-07	6.6E-08
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	2.5E-07	3.9E-08	ND
BARIUM	ND	ND	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	ND	ND	ND
LEAD	ND	ND	ND
MANGANESE	ND	ND	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	ND	ND	ND
<b>TOTAL RISK:</b>	<b>7.01E-06</b>	<b>1.29E-06</b>	<b>4.51E-06</b>

ND = Not detected

**TABLE F - 43**  
**Carcinogenic Risks**  
**Central Tendency Exposure by an On-Site Resident at POND03**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	4.0E-09	1.6E-12	5.6E-08
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	8.3E-10	3.4E-13	5.9E-09
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	5.7E-06	1.4E-07	3.0E-06
TOLUENE	ND	ND	ND
TRICHLOROETHENE	3.3E-09	8.0E-11	3.2E-08
VINYL CHLORIDE	1.1E-08	4.2E-12	4.0E-07
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	8.0E-07	7.2E-08	5.2E-08
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	2.4E-07	6.4E-09	ND
BARIUM	ND	ND	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	ND	ND	ND
LEAD	ND	ND	ND
MANGANESE	ND	ND	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	ND	ND	ND
<b>TOTAL RISK:</b>	<b>6.73E-06</b>	<b>2.14E-07</b>	<b>3.54E-06</b>

ND = Not detected

**TABLE F - 44**  
**Carcinogenic Risks**  
**Reasonable Maximum Exposure by an On-Site Resident at POND03**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	3.8E-08	1.8E-11	1.5E-07
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	7.7E-09	3.9E-12	1.6E-08
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	5.3E-05	1.5E-06	8.0E-06
TOLUENE	ND	ND	ND
TRICHLOROETHENE	3.1E-08	9.1E-10	8.6E-08
VINYL CHLORIDE	9.8E-08	4.8E-11	1.1E-06
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	7.5E-06	8.1E-07	1.4E-07
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	2.2E-06	7.3E-08	ND
BARIUM	ND	ND	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	ND	ND	ND
LEAD	ND	ND	ND
MANGANESE	ND	ND	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	ND	ND	ND
<b>TOTAL RISK:</b>	<b>6.28E-05</b>	<b>2.44E-06</b>	<b>9.43E-06</b>

ND = Not detected

**TABLE F - 45**  
**Noncarcinogenic Hazard Index**  
**Central Tendency Exposure by an On-Site Industrial Worker at POND03**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	1.3E-05	2.9E-08	8.9E-05
1,1-DICHLOROETHENE	6.5E-07	1.3E-09	ND
4-METHYL-2-PENTANONE	2.4E-05	3.6E-06	5.8E-04
ACETONE	ND	ND	ND
BENZENE	8.3E-06	1.7E-08	2.9E-04
CHLOROBENZENE	4.3E-03	1.6E-03	2.3E-01
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	2.6E-04	3.9E-05	1.7E-03
M,P-XYLENE	4.5E-05	5.5E-06	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	4.5E-05	5.5E-06	ND
TETRACHLOROETHENE	9.5E-03	1.1E-03	2.6E-02
TOLUENE	7.3E-07	1.1E-07	4.0E-05
TRICHLOROETHENE	4.4E-05	5.3E-06	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	2.1E-04	2.0E-04	3.5E-06
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	9.8E-04	4.3E-04	2.5E-05
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	1.3E-06	5.9E-07	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	6.3E-05	3.2E-05	3.8E-05
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBS</b>			
ALDRIN	ND	ND	ND
AROCLO-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	3.2E-03	1.3E-02	ND
ARSENIC	4.6E-04	6.3E-05	ND
BARIUM	1.7E-04	9.6E-05	ND
CADMIUM	4.7E-03	3.8E-03	ND
COPPER	ND	ND	ND
IRON	9.3E-03	2.5E-03	ND
LEAD	ND	ND	ND
MANGANESE	7.0E-04	5.6E-04	ND
MERCURY	ND	ND	ND
NICKEL	7.1E-04	1.1E-04	ND
SELENIUM	2.3E-05	1.5E-06	ND
THALLIUM	1.1E-01	2.9E-02	ND
VANADIUM	4.2E-03	5.6E-03	ND
TOTAL HI:	1.46E-01	5.74E-02	2.56E-01

ND = Not detected

**TABLE F - 46**  
**Noncarcinogenic Hazard Index**  
**Reasonable Maximum Exposure by an On-Site Industrial Worker at POND03**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	4.4E-05	1.1E-07	1.3E-04
1,1-DICHLOROETHENE	2.2E-06	5.1E-09	ND
4-METHYL-2-PENTANONE	8.0E-05	1.4E-05	8.6E-04
ACETONE	ND	ND	ND
BENZENE	2.8E-05	6.6E-08	4.3E-04
CHLOROBENZENE	1.4E-02	6.4E-03	3.4E-01
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	8.8E-04	1.5E-04	2.5E-03
M,P-XYLENE	1.5E-04	2.1E-05	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	1.5E-04	2.1E-05	ND
TETRACHLOROETHENE	3.2E-02	4.4E-03	3.8E-02
TOLUENE	2.4E-06	4.3E-07	6.0E-05
TRICHLOROETHENE	1.5E-04	2.0E-05	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	6.8E-04	7.6E-04	5.3E-06
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	3.3E-03	1.7E-03	3.7E-05
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	4.4E-06	2.3E-06	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	2.1E-04	1.2E-04	5.7E-05
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	1.1E-02	4.9E-02	ND
ARSENIC	1.5E-03	2.4E-04	ND
BARIUM	5.6E-04	3.7E-04	ND
CADMIUM	1.6E-02	1.5E-02	ND
COPPER	ND	ND	ND
IRON	3.1E-02	9.6E-03	ND
LEAD	ND	ND	ND
MANGANESE	2.3E-03	2.2E-03	ND
MERCURY	ND	ND	ND
NICKEL	2.4E-03	4.1E-04	ND
SELENIUM	7.5E-05	5.8E-06	ND
THALLIUM	3.6E-01	1.1E-01	ND
VANADIUM	1.4E-02	2.2E-02	ND
TOTAL HI:	4.86E-01	2.22E-01	3.82E-01

ND = Not detected

**TABLE F - 47**  
**Noncarcinogenic Hazard Index**  
**Central Tendency Exposure by an On-Site Resident at POND03**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	1.2E-04	5.2E-08	2.9E-04
1,1-DICHLOROETHENE	5.8E-06	2.3E-09	ND
4-METHYL-2-PENTANONE	2.1E-04	6.4E-06	1.9E-03
ACETONE	ND	ND	ND
BENZENE	7.4E-05	3.1E-08	9.3E-04
CHLOROBENZENE	3.8E-02	2.9E-03	7.4E-01
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	2.3E-03	6.9E-05	5.4E-03
M,P-XYLENE	4.0E-04	9.7E-06	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	4.0E-04	9.7E-06	ND
TETRACHLOROETHENE	8.5E-02	2.0E-03	8.3E-02
TOLUENE	6.5E-06	2.0E-07	1.3E-04
TRICHLOROETHENE	3.9E-04	9.4E-06	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	1.8E-03	3.5E-04	1.2E-05
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	8.7E-03	7.7E-04	8.0E-05
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	1.2E-05	1.0E-06	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	5.6E-04	5.6E-05	1.2E-04
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBs</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	2.8E-02	2.3E-02	ND
ARSENIC	4.1E-03	1.1E-04	ND
BARIUM	1.5E-03	1.7E-04	ND
CADMIUM	4.2E-02	6.7E-03	ND
COPPER	ND	ND	ND
IRON	8.3E-02	4.4E-03	ND
LEAD	ND	ND	ND
MANGANESE	6.2E-03	9.9E-04	ND
MERCURY	ND	ND	ND
NICKEL	6.3E-03	1.9E-04	ND
SELENIUM	2.0E-04	2.7E-06	ND
THALLIUM	9.5E-01	5.1E-02	ND
VANADIUM	3.7E-02	9.9E-03	ND
<b>TOTAL HI:</b>	<b>1.30E+00</b>	<b>1.02E-01</b>	<b>8.34E-01</b>

ND = Not detected

**TABLE F - 48**  
**Noncarcinogenic Hazard Index**  
**Reasonable Maximum Exposure by an On-Site Resident at POND03**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	3.3E-04	1.8E-07	2.3E-04
1,1-DICHLOROETHENE	1.6E-05	7.9E-09	ND
4-METHYL-2-PENTANONE	5.9E-04	2.2E-05	1.5E-03
ACETONE	ND	ND	ND
BENZENE	2.1E-04	1.0E-07	7.5E-04
CHLOROBENZENE	1.1E-01	1.0E-02	5.9E-01
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	6.6E-03	2.3E-04	4.3E-03
M,P-XYLENE	1.1E-03	3.3E-05	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	1.1E-03	3.3E-05	ND
TETRACHLOROETHENE	2.4E-01	7.0E-03	6.7E-02
TOLUENE	1.8E-05	6.7E-07	1.0E-04
TRICHLOROETHENE	1.1E-03	3.2E-05	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	5.1E-03	1.2E-03	9.2E-06
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	2.4E-02	2.6E-03	6.4E-05
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	3.3E-05	3.6E-06	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	1.6E-03	1.9E-04	9.9E-05
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBs</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	7.9E-02	7.8E-02	ND
ARSENIC	1.2E-02	3.8E-04	ND
BARIUM	4.2E-03	5.8E-04	ND
CADMIUM	1.2E-01	2.3E-02	ND
COPPER	ND	ND	ND
IRON	2.3E-01	1.5E-02	ND
LEAD	ND	ND	ND
MANGANESE	1.7E-02	3.4E-03	ND
MERCURY	ND	ND	ND
NICKEL	1.8E-02	6.4E-04	ND
SELENIUM	5.6E-04	9.1E-06	ND
THALLIUM	2.7E+00	1.7E-01	ND
VANADIUM	1.0E-01	3.4E-02	ND
TOTAL HI:	3.63E+00	3.49E-01	6.66E-01

ND = Not detected

**TABLE F - 49**  
**Carcinogenic Risks**  
**Central Tendency Exposure by an On-Site Industrial Worker at SP**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	8.8E-11	1.8E-13	4.3E-09
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	1.4E-11	2.8E-14	4.2E-10
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	4.3E-12	9.1E-15	4.2E-11
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	7.6E-10	9.2E-11	6.6E-10
TOLUENE	ND	ND	ND
TRICHLOROETHENE	1.2E-10	1.4E-11	2.2E-09
VINYL CHLORIDE	8.6E-09	1.7E-11	5.3E-07
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	3.0E-11	1.3E-11	5.6E-11
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	1.5E-10	1.1E-10	1.2E-15
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	ND	ND	ND
BARIUM	ND	ND	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	ND	ND	ND
LEAD	ND	ND	ND
MANGANESE	ND	ND	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	ND	ND	ND
<b>TOTAL RISK:</b>	<b>9.73E-09</b>	<b>2.43E-10</b>	<b>5.40E-07</b>

ND = Not detected

**TABLE F - 50**  
**Carcinogenic Risks**  
**Reasonable Maximum Exposure by an On-Site Industrial Worker at SP**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	1.5E-09	3.4E-12	3.2E-08
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	2.3E-10	5.5E-13	3.1E-09
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	7.2E-11	1.8E-13	3.2E-10
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	1.3E-08	1.8E-09	4.9E-09
TOLUENE	ND	ND	ND
TRICHLOROETHENE	1.9E-09	2.7E-10	1.7E-08
VINYL CHLORIDE	1.4E-07	3.3E-10	4.0E-06
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	5.0E-10	2.6E-10	4.2E-10
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	2.4E-09	2.1E-09	8.7E-15
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	ND	ND	ND
BARIUM	ND	ND	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	ND	ND	ND
LEAD	ND	ND	ND
MANGANESE	ND	ND	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	ND	ND	ND
<b>TOTAL RISK:</b>	<b>1.62E-07</b>	<b>4.70E-09</b>	<b>4.03E-06</b>

ND = Not detected

**TABLE F - 51**  
**Carcinogenic Risks**  
**Central Tendency Exposure by an On-Site Resident at SP**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	1.4E-09	5.7E-13	2.5E-08
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	2.2E-10	9.0E-14	2.5E-09
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	6.9E-11	2.9E-14	2.5E-10
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	1.2E-08	2.9E-10	3.9E-09
TOLUENE	ND	ND	ND
TRICHLOROETHENE	1.8E-09	4.4E-11	1.3E-08
VINYL CHLORIDE	1.4E-07	5.5E-11	3.1E-06
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	4.8E-10	4.3E-11	3.3E-10
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	2.3E-09	3.4E-10	6.8E-15
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	ND	ND	ND
BARIUM	ND	ND	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	ND	ND	ND
LEAD	ND	ND	ND
MANGANESE	ND	ND	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	ND	ND	ND
<b>TOTAL RISK:</b>	<b>1.55E-07</b>	<b>7.78E-10</b>	<b>3.17E-06</b>

ND = Not detected

**TABLE F - 52**  
**Carcinogenic Risks**  
**Reasonable Maximum Exposure by an On-Site Resident at SP**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	1.3E-08	6.4E-12	6.8E-08
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	2.0E-09	1.0E-12	6.6E-09
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	6.5E-10	3.3E-13	6.6E-10
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	1.1E-07	3.3E-09	1.0E-08
TOLUENE	ND	ND	ND
TRICHLOROETHENE	1.7E-08	5.0E-10	3.5E-08
VINYL CHLORIDE	1.3E-06	6.2E-10	8.3E-06
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	4.5E-09	4.9E-10	8.7E-10
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	2.2E-08	3.9E-09	1.8E-14
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	ND	ND	ND
BARIUM	ND	ND	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	ND	ND	ND
LEAD	ND	ND	ND
MANGANESE	ND	ND	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	ND	ND	ND
<b>TOTAL RISK:</b>	<b>1.45E-06</b>	<b>8.85E-09</b>	<b>8.43E-06</b>

ND = Not detected

**TABLE F - 53**  
**Noncarcinogenic Hazard Index**  
**Central Tendency Exposure by an On-Site Industrial Worker at SP**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	3.4E-06	7.7E-09	1.4E-05
1,1-DICHLOROETHENE	2.3E-07	4.6E-10	ND
4-METHYL-2-PENTANONE	8.3E-06	1.2E-06	1.2E-04
ACETONE	ND	ND	ND
BENZENE	2.2E-06	4.5E-09	1.2E-04
CHLOROBENZENE	1.0E-04	4.0E-05	3.3E-03
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	1.2E-06	1.8E-07	4.5E-06
M,P-XYLENE	1.1E-07	1.3E-08	ND
METHYLENE CHLORIDE	1.3E-07	2.8E-10	4.2E-07
O-XYLENE	9.5E-08	1.1E-08	ND
TETRACHLOROETHENE	2.1E-05	2.5E-06	3.3E-05
TOLUENE	4.8E-06	7.2E-07	1.6E-04
TRICHLOROETHENE	2.4E-05	2.9E-06	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	3.7E-06	3.5E-06	3.8E-07
1,3-DICHLOROBENZENE	7.3E-08	3.3E-08	2.6E-06
1,4-DICHLOROBENZENE	5.9E-07	2.6E-07	1.6E-07
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	4.4E-06	2.0E-06	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	7.3E-06	5.3E-06	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBs</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	ND	ND	ND
BARIUM	4.6E-04	2.6E-04	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	7.3E-03	2.0E-03	ND
LEAD	ND	ND	ND
MANGANESE	8.1E-04	6.5E-04	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	4.6E-03	6.2E-03	ND
TOTAL HI:	1.34E-02	9.08E-03	3.76E-03

ND = Not detected

**TABLE F - 54**  
**Noncarcinogenic Hazard Index**  
**Reasonable Maximum Exposure by an On-Site Industrial Worker at SP**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	1.1E-05	3.0E-08	2.1E-05
1,1-DICHLOROETHENE	7.6E-07	1.8E-09	ND
4-METHYL-2-PENTANONE	2.8E-05	4.8E-06	1.8E-04
ACETONE	ND	ND	ND
BENZENE	7.3E-06	1.8E-08	1.8E-04
CHLOROBENZENE	3.4E-04	1.5E-04	4.9E-03
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	4.0E-06	6.8E-07	6.8E-06
M,P-XYLENE	3.7E-07	5.1E-08	ND
METHYLENE CHLORIDE	4.5E-07	1.1E-09	6.2E-07
O-XYLENE	3.2E-07	4.4E-08	ND
TETRACHLOROETHENE	6.8E-05	9.5E-06	4.9E-05
TOLUENE	1.6E-05	2.8E-06	2.3E-04
TRICHLOROETHENE	8.2E-05	1.1E-05	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	1.2E-05	1.4E-05	5.6E-07
1,3-DICHLOROBENZENE	2.4E-07	1.3E-07	3.9E-06
1,4-DICHLOROBENZENE	2.0E-06	1.0E-06	2.3E-07
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	1.5E-05	7.6E-06	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	2.4E-05	2.1E-05	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	ND	ND	ND
BARIUM	1.5E-03	1.0E-03	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	2.4E-02	7.6E-03	ND
LEAD	ND	ND	ND
MANGANESE	2.7E-03	2.5E-03	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	1.5E-02	2.4E-02	ND
TOTAL HI:	4.47E-02	3.51E-02	5.61E-03

ND = Not detected

**TABLE F - 55**  
**Noncarcinogenic Hazard Index**  
**Central Tendency Exposure by an On-Site Resident at SP**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	3.1E-05	1.4E-08	4.5E-05
1,1-DICHLOROETHENE	2.0E-06	8.1E-10	ND
4-METHYL-2-PENTANONE	7.3E-05	2.2E-06	3.9E-04
ACETONE	ND	ND	ND
BENZENE	2.0E-05	8.1E-09	3.9E-04
CHLOROBENZENE	9.1E-04	7.1E-05	1.1E-02
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	1.1E-05	3.1E-07	1.5E-05
M,P-XYLENE	9.8E-07	2.3E-08	ND
METHYLENE CHLORIDE	1.2E-06	5.0E-10	1.4E-06
O-XYLENE	8.5E-07	2.0E-08	ND
TETRACHLOROETHENE	1.8E-04	4.4E-06	1.1E-04
TOLUENE	4.2E-05	1.3E-06	5.1E-04
TRICHLOROETHENE	2.2E-04	5.2E-06	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	3.3E-05	6.2E-06	1.2E-06
1,3-DICHLOROBENZENE	6.5E-07	5.8E-08	8.6E-06
1,4-DICHLOROBENZENE	5.2E-06	4.6E-07	5.1E-07
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	3.9E-05	3.5E-06	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	6.5E-05	9.5E-06	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	ND	ND	ND
BARIUM	4.1E-03	4.7E-04	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	6.5E-02	3.5E-03	ND
LEAD	ND	ND	ND
MANGANESE	7.2E-03	1.1E-03	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	4.1E-02	1.1E-02	ND
TOTAL HI:	1.19E-01	1.61E-02	1.22E-02

ND = Not detected

**TABLE F - 56**  
**Noncarcinogenic Hazard Index**  
**Reasonable Maximum Exposure by an On-Site Resident at SP**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	8.6E-05	4.7E-08	3.6E-05
1,1-DICHLOROETHENE	5.7E-06	2.8E-09	ND
4-METHYL-2-PENTANONE	2.1E-04	7.5E-06	3.1E-04
ACETONE	ND	ND	ND
BENZENE	5.5E-05	2.8E-08	3.1E-04
CHLOROBENZENE	2.6E-03	2.4E-04	8.6E-03
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	3.0E-05	1.1E-06	1.2E-05
M,P-XYLENE	2.7E-06	8.0E-08	ND
METHYLENE CHLORIDE	3.3E-06	1.7E-09	1.1E-06
O-XYLENE	2.4E-06	7.0E-08	ND
TETRACHLOROETHENE	5.1E-04	1.5E-05	8.6E-05
TOLUENE	1.2E-04	4.3E-06	4.1E-04
TRICHLOROETHENE	6.1E-04	1.8E-05	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	9.1E-05	2.1E-05	9.8E-07
1,3-DICHLOROBENZENE	1.8E-06	2.0E-07	6.9E-06
1,4-DICHLOROBENZENE	1.5E-05	1.6E-06	4.0E-07
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	1.1E-04	1.2E-05	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	1.8E-04	3.2E-05	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXAChLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	ND	ND	ND
BARIUM	1.1E-02	1.6E-03	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	1.8E-01	1.2E-02	ND
LEAD	ND	ND	ND
MANGANESE	2.0E-02	3.9E-03	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	1.1E-01	3.7E-02	ND
<b>TOTAL HI:</b>	<b>3.34E-01</b>	<b>5.51E-02</b>	<b>9.78E-03</b>

ND = Not detected

**TABLE F - 57**  
**Carcinogenic Risks**  
**Central Tendency Exposure by an On-Site Industrial Worker at SSA**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	ND	ND	ND
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	5.2E-11	1.1E-13	2.1E-09
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	ND	ND	ND
TRICHLOROETHENE	3.5E-13	4.2E-14	8.9E-12
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	ND	ND	ND
BARIUM	ND	ND	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	ND	ND	ND
LEAD	ND	ND	ND
MANGANESE	ND	ND	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	ND	ND	ND
<b>TOTAL RISK:</b>	<b>5.20E-11</b>	<b>1.48E-13</b>	<b>2.13E-09</b>

ND = Not detected

**TABLE F - 58**  
**Carcinogenic Risks**  
**Reasonable Maximum Exposure by an On-Site Industrial Worker at SSA**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	ND	ND	ND
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	8.6E-10	2.1E-12	1.6E-08
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	ND	ND	ND
TRICHLOROETHENE	5.8E-12	8.0E-13	6.6E-11
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	ND	ND	ND
BARIUM	ND	ND	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	ND	ND	ND
LEAD	ND	ND	ND
MANGANESE	ND	ND	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	ND	ND	ND
<b>TOTAL RISK:</b>	<b>8.67E-10</b>	<b>2.86E-12</b>	<b>1.59E-08</b>

ND = Not detected

**TABLE F - 59**  
**Carcinogenic Risks**  
**Central Tendency Exposure by an On-Site Resident at SSA**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	ND	ND	ND
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	8.3E-10	3.4E-13	1.2E-08
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	ND	ND	ND
TRICHLOROETHENE	5.5E-12	1.3E-13	5.2E-11
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	ND	ND	ND
BARIUM	ND	ND	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	ND	ND	ND
LEAD	ND	ND	ND
MANGANESE	ND	ND	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	ND	ND	ND
<b>TOTAL RISK:</b>	<b>8.32E-10</b>	<b>4.74E-13</b>	<b>1.25E-08</b>

ND = Not detected

**TABLE F - 60**  
**Carcinogenic Risks**  
**Reasonable Maximum Exposure by an On-Site Resident at SSA**

<b>CHEMICALS</b>	<b>INGEST SOIL</b>	<b>DERMAL CONTACT</b>	<b>INHALE VAPOR</b>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	ND	ND	ND
1,1-DICHLOROETHENE	ND	ND	ND
4-METHYL-2-PENTANONE	ND	ND	ND
ACETONE	ND	ND	ND
BENZENE	7.7E-09	3.9E-12	3.3E-08
CHLOROBENZENE	ND	ND	ND
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	ND	ND	ND
M,P-XYLENE	ND	ND	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	ND	ND	ND
TRICHLOROETHENE	5.2E-11	1.5E-12	1.4E-10
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	ND	ND	ND
BARIUM	ND	ND	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	ND	ND	ND
LEAD	ND	ND	ND
MANGANESE	ND	ND	ND
MERCURY	ND	ND	ND
NICKEL	ND	ND	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	ND	ND	ND
TOTAL RISK:	7.77E-09	5.39E-12	3.32E-08

ND = Not detected

**TABLE F - 61**  
**Noncarcinogenic Hazard Index**  
**Central Tendency Exposure by an On-Site Industrial Worker at SSA**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	9.5E-08	2.1E-10	5.1E-07
1,1-DICHLOROETHENE	ND	ND	ND
4-METHYL-2-PENTANONE	1.5E-06	2.3E-07	2.9E-05
ACETONE	ND	ND	ND
BENZENE	8.3E-06	1.7E-08	6.0E-04
CHLOROBENZENE	5.6E-05	2.2E-05	2.4E-03
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	2.6E-07	3.9E-08	1.3E-06
M,P-XYLENE	7.3E-10	8.8E-11	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	4.4E-10	5.3E-11	ND
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	5.2E-08	7.8E-09	2.3E-06
TRICHLOROETHENE	7.3E-08	8.8E-09	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	7.3E-07	7.0E-07	1.0E-07
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBs</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	ND	ND	ND
BARIUM	3.6E-04	2.0E-04	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	6.4E-03	1.7E-03	ND
LEAD	ND	ND	ND
MANGANESE	4.8E-04	3.9E-04	ND
MERCURY	ND	ND	ND
NICKEL	1.2E-03	1.7E-04	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	4.2E-03	5.6E-03	ND
<b>TOTAL HI:</b>	<b>1.26E-02</b>	<b>8.07E-03</b>	<b>3.03E-03</b>

ND = Not detected

**TABLE F - 62**  
**Noncarcinogenic Hazard Index**  
**Reasonable Maximum Exposure by an On-Site Industrial Worker at SSA**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	3.2E-07	8.2E-10	7.7E-07
1,1-DICHLOROETHENE	ND	ND	ND
4-METHYL-2-PENTANONE	5.1E-06	8.8E-07	4.4E-05
ACETONE	ND	ND	ND
BENZENE	2.8E-05	6.6E-08	9.0E-04
CHLOROBENZENE	1.9E-04	8.3E-05	3.6E-03
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	8.8E-07	1.5E-07	2.0E-06
M,P-XYLENE	2.4E-09	3.4E-10	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	1.5E-09	2.0E-10	ND
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	1.7E-07	3.0E-08	3.4E-06
TRICHLOROETHENE	2.4E-07	3.4E-08	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	2.4E-06	2.7E-06	1.5E-07
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	ND	ND	ND
BARIUM	1.2E-03	7.9E-04	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	2.1E-02	6.6E-03	ND
LEAD	ND	ND	ND
MANGANESE	1.6E-03	1.5E-03	ND
MERCURY	ND	ND	ND
NICKEL	3.9E-03	6.7E-04	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	1.4E-02	2.2E-02	ND
<b>TOTAL HI:</b>	<b>4.21E-02</b>	<b>3.12E-02</b>	<b>4.52E-03</b>

ND = Not detected

**TABLE F - 63**  
**Noncarcinogenic Hazard Index**  
**Central Tendency Exposure by an On-Site Resident at SSA**

CHEMICALS	INGEST SOIL	DERMAL CONTACT	INHALE VAPOR
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	8.5E-07	3.8E-10	1.7E-06
1,1-DICHLOROETHENE	ND	ND	ND
4-METHYL-2-PENTANONE	1.4E-05	4.1E-07	9.6E-05
ACETONE	ND	ND	ND
BENZENE	7.4E-05	3.1E-08	2.0E-03
CHLOROBENZENE	5.0E-04	3.8E-05	7.8E-03
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	2.3E-06	6.9E-08	4.3E-06
M,P-XYLENE	6.5E-09	1.6E-10	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	3.9E-09	9.4E-11	ND
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	4.6E-07	1.4E-08	7.4E-06
TRICHLOROETHENE	6.5E-07	1.6E-08	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	6.5E-06	1.2E-06	3.3E-07
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXAChLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCBS</b>			
ALDRIN	ND	ND	ND
AROCLOR-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	ND	ND	ND
BARIUM	3.2E-03	3.6E-04	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	5.6E-02	3.0E-03	ND
LEAD	ND	ND	ND
MANGANESE	4.3E-03	6.9E-04	ND
MERCURY	ND	ND	ND
NICKEL	1.0E-02	3.1E-04	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	3.7E-02	9.9E-03	ND
TOTAL HI:	1.12E-01	1.44E-02	9.87E-03

ND = Not detected

**TABLE F - 64**  
**Noncarcinogenic Hazard Index**  
**Reasonable Maximum Exposure by an On-Site Resident at SSA**

<u>CHEMICALS</u>	<u>INGEST SOIL</u>	<u>DERMAL CONTACT</u>	<u>INHALE VAPOR</u>
<b>I. VOLATILE ORGANIC COMPOUNDS</b>			
1,1,1-TRICHLOROETHANE	2.4E-06	1.3E-09	1.3E-06
1,1-DICHLOROETHENE	ND	ND	ND
4-METHYL-2-PENTANONE	3.8E-05	1.4E-06	7.7E-05
ACETONE	ND	ND	ND
BENZENE	2.1E-04	1.0E-07	1.6E-03
CHLOROBENZENE	1.4E-03	1.3E-04	6.2E-03
DIBROMOCHLOROMETHANE	ND	ND	ND
ETHYLBENZENE	6.6E-06	2.3E-07	3.5E-06
M,P-XYLENE	1.8E-08	5.3E-10	ND
METHYLENE CHLORIDE	ND	ND	ND
O-XYLENE	1.1E-08	3.2E-10	ND
TETRACHLOROETHENE	ND	ND	ND
TOLUENE	1.3E-06	4.7E-08	5.9E-06
TRICHLOROETHENE	1.8E-06	5.3E-08	ND
VINYL CHLORIDE	ND	ND	ND
<b>II. SEMIVOLATILE ORGANIC COMPOUNDS</b>			
1,2,4-TRICHLOROBENZENE	1.8E-05	4.2E-06	2.6E-07
1,3-DICHLOROBENZENE	ND	ND	ND
1,4-DICHLOROBENZENE	ND	ND	ND
3,3'-DICHLOROBENZIDINE	ND	ND	ND
4-METHYLPHENOL	ND	ND	ND
BENZO(A)PYRENE	ND	ND	ND
BENZO(B)FLUORANTHENE	ND	ND	ND
BIS(2-CHLOROETHYL)ETHER	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ND	ND	ND
DIBENZ(A,H)ANTHRACENE	ND	ND	ND
HEXACHLOROBENZENE	ND	ND	ND
NAPHTHALENE	ND	ND	ND
NITROBENZENE	ND	ND	ND
<b>III. PESTICIDES/ PCB'S</b>			
ALDRIN	ND	ND	ND
AROCLOL-1242	ND	ND	ND
<b>IV. METALS</b>			
ANTIMONY	ND	ND	ND
ARSENIC	ND	ND	ND
BARIUM	8.9E-03	1.2E-03	ND
CADMIUM	ND	ND	ND
COPPER	ND	ND	ND
IRON	1.6E-01	1.0E-02	ND
LEAD	ND	ND	ND
MANGANESE	1.2E-02	2.4E-03	ND
MERCURY	ND	ND	ND
NICKEL	2.9E-02	1.1E-03	ND
SELENIUM	ND	ND	ND
THALLIUM	ND	ND	ND
VANADIUM	1.0E-01	3.4E-02	ND
<b>TOTAL HI:</b>	<b>3.15E-01</b>	<b>4.90E-02</b>	<b>7.88E-03</b>

ND = Not detected